

**REMEDIAL ACTION PLAN/ RECORD OF DECISION
FOR IR02 AT THE
FLEET AND INDUSTRIAL SUPPLY CENTER OAKLAND
ALAMEDA FACILITY/ALAMEDA ANNEX**

June 2001

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ACRONYMS AND ABBREVIATIONS

ARAR	Applicable or relevant and appropriate requirement
BAAQMD	Bay Area Air Quality Management District
bgs	Below ground surface
BRAC	Base Realignment and Closure
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-term Environmental Action Navy
COPC	Chemical of potential concern
CFR	Code of Federal Regulations
COC	Contaminant of concern
DoD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
ELCR	Excess lifetime cancer risk
EPA	U.S. Environmental Protection Agency
ERA	Ecological risk assessment
FFSRA	Federal Facility Site Remediation Agreement
FISCO	Fleet and Industrial Supply Center Oakland
FS	Feasibility study
HHRA	Human health risk assessment
HI	Hazard index
HSAA	Hazardous Substances Account Act
HSC	Health and Safety Code
IR	Installation restoration
IRP	Installation Restoration Program
mg/kg	Milligrams per kilogram
NAS	Naval Air Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NRHP	National Register of Historical Places
NSC	Naval Supply Center

ACRONYMS AND ABBREVIATIONS (Continued)

O&M	Operation and maintenance
PA/SI	Preliminary assessment/site inspection
PAH	Polynuclear aromatic hydrocarbons
PAR	PAR Environmental Services Inc.
PCB	Polychlorinated biphenyl
ppm	Parts per Million
PRC	PRC Environmental Management, Inc.
RAB	Restoration Advisory Board
RAO	Remedial action objective
RAP	Remedial action plan
RCRA	Resource Conservation and Recovery Act
RI	Remedial investigation
ROD	Record of decision
RWQCB	Regional Water Quality Control Board
SI	Site Investigation
STLC	Soluble threshold limit concentration
SVOC	Semivolatile organic compound
TtEMI	Tetra Tech EM Inc.
TCLP	Toxicity characteristic leaching procedure
TDS	Total dissolved solids
TPH	Total petroleum hydrocarbons
TTLC	Total threshold limit concentration
UCL ₉₅	95 percent upper confidence level
VOC	Volatile organic compound
WET	Waste extraction test
yd ³	Cubic yard

1.0 DECLARATION

1.1 SITE NAME AND LOCATION

This remedial action plan/record of decision (RAP/ROD) addresses contaminated soil at Installation Restoration Site 02 (IR02) of the Fleet and Industrial Supply Center Oakland (FISCO) Alameda Facility/Alameda Annex in Alameda, California.

In 1995, Alameda Facility/Alameda Annex was designated for closure under the Base Realignment and Closure (BRAC) Act of 1990. It was closed as of September 1998. Alameda Facility/Alameda Annex is not on the National Priorities List. Eight IR sites, the marsh crust (a layer of contaminated sediment deposited around 10 to 20 feet below the ground surface [bgs]), and shallow groundwater were identified in the past as being potentially contaminated.

The Navy transferred title to the Alameda Facility/Alameda Annex to the City of Alameda on July 17, 2000 pursuant to an Economic Development Conveyance conducted as an early transfer pursuant to Section 120(h)(3) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The Quitclaim Deed for the transfer of title and Interim Covenant to Restrict Use of Property Environmental Restriction entered into between the Navy and the California Environmental Protection Agency Department of Toxic Substances Control (DTSC) on July 17, 2000 included certain interim land use restrictions pertaining to Site IR02 based upon the cadmium and polychlorinated biphenyl (PCB) contamination at the site as required by Section 120(h)(3) of CERCLA. Those interim restrictions prohibited residential use of the property until such time as the site was cleaned to risk levels deemed acceptable for residential use.

1.2 STATEMENT OF BASIS AND PURPOSE

This RAP/ROD decision document presents the final remedy selected by the Department of the Navy (Navy) for soil at the western one-third of IR02 at Alameda Facility/Alameda Annex. This RAP/ROD presents the interim remedy selected by the Navy for soil at the eastern two-thirds of IR02. The selected remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986

and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). In addition, the selected remedy was chosen in accordance with the State of California Hazardous Substance Account Act (HSAA), which is contained in Chapter 6.8 of the California Health and Safety Code (HSC) and specifically complies with California HSC Section 25356.1. This decision document is based on the administrative record file for Alameda Facility/Alameda Annex.

The selected remedial action is consistent with and is supported by the Final Feasibility Study for Soil at SWMU 1 (FS) completed in January 1999. The FS included cost and soil volume estimates based on both residential and industrial land use scenarios because the local reuse planning process was not completed until May 1999 when a land use plan was adopted and it was no longer necessary to leave the future land use scenario open-ended. The selected remedial action is based on the proposed future land use for the IR02 site as depicted in the Catellus Project Master Plan approved May 31, 2000 (Catellus 2000) and as reflected in the interim land use restrictions in the Quitclaim Deed and the Interim Covenant to Restrict Use of Property Environmental Restriction entered into between the Navy and DTSC. The western one-third (approximately) of IR02 will be developed for residential use and the eastern two-thirds will be developed for industrial and commercial uses.

The selected remedial action for the planned residential portion will be the final action for all contaminants of concern in the soil on that property. The remedial action chosen for the planned industrial portion will be the final action for that property for all contaminants of concern in the soil other than polynuclear aromatic hydrocarbons (PAH). After implementation of this remedial action, PAHs in the soil in the planned industrial portion may be addressed in a future decision document. In addition, groundwater contamination has not yet been addressed at the Alameda Facility/Alameda Annex, although the RI/FS process is underway. Groundwater may be addressed in a future decision document. In accordance with the Federal Facility Site Remediation Agreement (FFSRA) between the Navy and the DTSC, the Navy is conducting additional evaluations of PAHs at IR02.

The selected remedial alternative is a variant of Alternative 4 from the FS. It was selected because it conforms to the planned reuse of the site as required by the Office of Solid Waste and Emergency Response Directive 9355.7-04 "Land Use in the CERCLA Remedy Selection Process," May 25, 1995 and because it satisfies the NCP threshold criteria for overall protection of human health and the environment, and compliance with applicable or relevant and appropriate requirements (ARARs). Cost was considered as a "modifying criteria" as provided under the NCP at 40 CFR 300.430(f)(1)(i)(C) and

(D). The selected alternative is cost-effective because its costs are proportional to its overall effectiveness (40 CFR Section 300.430(f)(1)(i)(D)).

A previous RAP/ROD was signed on February 2, 2001 for contamination of the marsh crust at Alameda Facility/Alameda Annex. Additional RAP/RODs will be prepared for other IR sites at Alameda Facility/Alameda Annex.

The California Environmental Protection Agency's Department of Toxic Substances Control (DTSC) and the California Regional Water Quality Control Board (RWQCB) San Francisco Bay Region concur with the selected remedy.

1.3 ASSESSMENT OF THE SITE

Hazardous substances are present in the surface (0 to 1 feet bgs) soil of IR02 at Alameda Facility/Alameda Annex. The response action selected in this RAP/ROD is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

1.4 DESCRIPTION OF THE SELECTED REMEDY

The selected remedy is the final, comprehensive remedial action to address contaminated soil at the planned residential portion of IR02 at Alameda Facility/Alameda Annex. It is also the comprehensive remedial action to address all soil contaminants exclusive of marsh crust at the planned industrial portion of IR02 except for PAH contaminants. After implementation of this remedial action, PAHs in the planned industrial portion may be addressed in a future decision document. A previous RAP/ROD was signed on February 2, 2001, for contamination of the marsh crust underlying the entire Alameda Facility/Alameda Annex, including IR02. Site-specific RAP/RODs will be prepared in the future to document the selected remedy for the other IR sites at Alameda Facility/Alameda Annex.

Based on the results of the remedial investigation (RI), the Navy has concluded that polychlorinated biphenyls (PCB) and cadmium in the surface soil at Alameda Facility/Alameda Annex could pose an unacceptable risk to human health under current and future land use on both portions of IR02. Therefore,

the Navy and DTSC, with the concurrence of RWQCB, have selected excavation of PCB- and cadmium-contaminated soil and off-site disposal in a permitted landfill as the remedy for IR02.

Excavation of contaminated soil from both the planned residential area (western one-third) and from the planned industrial (eastern two-thirds) area of IR02 will be conducted. Soil contaminated with PCBs and cadmium in excess of residential cleanup levels (1 part per million (ppm) and 12 ppm, respectively) will be excavated from the planned residential area and temporarily placed in a staging pile on site. In the planned industrial area, soil contaminated with PCBs and cadmium in excess of the industrial cleanup level (10 ppm and 450 ppm, respectively) will also be excavated and temporarily stockpiled. The cleanup levels are based on the ARAR for PCBs in 40 CFR 761.61(a)(4)(i)(A) and (B), and on a risk-based level for cadmium. Erosion and runoff controls will be used at the staging pile to prevent further distribution of contaminants. Contaminated soil will be disposed in permitted, off-site Class I or II landfills, depending on the concentration of PCBs and cadmium found and the classification of the waste. Excavated areas will be backfilled with clean fill. The Interim Restrictions prohibiting residential use on IR02 established in the Quitclaim Deed for FISC Alameda dated July 17, 2000, shall be released for the western third of IR02 (planned residential portion). It is the intent of DTSC that the "Interim Covenant to Restrict Use of Property/Environmental Restriction" for FISC Alameda dated July 17, 2000, shall be released for the western third of IR02 (planned residential portion) pending final review of benzene data. Restrictions shall continue in effect for the eastern two-thirds upon completion of the excavation required under this RAP/ROD. The soil cleanup for the western third will be to unrestricted residential levels so there will be no further need for the interim restrictions. The cleanup on the eastern two-thirds will be to industrial levels to accommodate the future use identified in the Catellus Project Master Plan so there will be a need to continue the restrictions. Evaluation of existing data for the western one-third of the site indicates PAHs are not present at concentrations that pose an unacceptable risk to future residents. Although no engineered forms of long-term operation and maintenance will be required for this response action, long term operation and maintenance of an administrative nature will be required to ensure the land use covenant stays in place and is effective. Confirmation sampling will be conducted to verify that residual contaminant concentrations do not exceed cleanup levels.

1.5 DECLARATION/STATUTORY DETERMINATION

The selected remedy for IR02 at Alameda Facility/Alameda Annex is protective of human health and the environment. It complies with federal and state requirements that are applicable or relevant and appropriate to the remedial action and is cost-effective. The remedy makes use of permanent solutions to the maximum extent practicable. However, the selected remedy does not satisfy the statutory preference for remedies that employ treatment to reduce toxicity, mobility, or volume of contaminants as a principal element. Treatment is not easily implementable or cost-effective for contaminated soil at IR02 at Alameda Facility/Alameda Annex because of the uncertainty of achieving the cleanup levels and the higher unit costs compared to excavation and off-site disposal.

The following information is included in the Decision Summary section of this RAP/ROD. Additional information can be found in the Administrative Record file for this site.

- Contaminants of concern and their respective concentrations
- Baseline risk represented by the chemicals of concern
- Cleanup levels established for chemicals of concern and the basis for these levels
- How source materials constituting principal threats are addressed
- Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of groundwater used in the baseline risk assessment and RAP/ROD
- Potential land and groundwater use that will be available at the site as a result of the selected remedy
- Estimated capital, annual operation and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected
- Key factor(s) that led to selecting the remedy

Appendix A of this RAP/ROD contains the administrative record index. Appendix B contains the California Environmental Quality Act (CEQA) Negative Declaration. Appendix C contains the responsiveness summary and Appendix D contains the non-binding allocation of responsibility as prepared by the DTSC and required by the California HSC.

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on the planned industrial portion of Site IR02 above levels that do not allow for unlimited use and unrestricted exposure, a statutory review will be conducted within 5 years after initiation of remedial action to ensure that the remedy for the planned industrial portion is or will be protective of human health and the environment.

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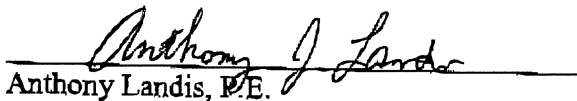
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Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on the planned industrial portion of Site IR02 above levels that do not allow for unlimited use and unrestricted exposure, a statutory review will be conducted within 5 years after initiation of remedial action to ensure that the remedy for the planned industrial portion is or will be protective of human health and the environment.



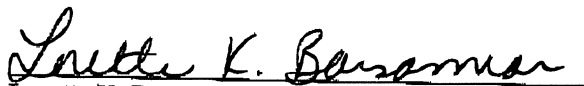
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2.0 DECISION SUMMARY

The decision summary provides an overview of site characteristics, alternatives evaluated, and the analysis of those alternatives. It also identifies the selected remedy and explains how the remedy fulfills statutory and regulatory requirements.

2.1 SITE NAME, LOCATION, AND DESCRIPTION

This section contains basic information about the facility, including its location, the lead and support agencies, and a description of the site.

2.1.1 Site Name and Location

Alameda Facility/Alameda Annex is located about 1 mile southeast of the FISCO main base and less than 1 mile east of the former Naval Air Station (NAS) Alameda, along the southern shore of the Oakland Inner Harbor in Alameda, California (see Figure 1). IR02 is located in the south-central portion of Alameda Facility/Alameda Annex.

2.1.2 Lead and Support Agencies

The Navy is the lead agency for the investigation and cleanup of IR02 Alameda Facility/Alameda Annex. DTSC, EPA, and RWQCB are the regulatory support agencies, as defined by the NCP.

2.1.3 Site Type and Description

Alameda Facility/Alameda Annex occupies about 143 acres and served during its operation as part of the main supply facility supporting U.S. Department of Defense (DoD) operations of military fleets and shore activities in the Pacific Basin. IR02 occupies approximately 10.6 acres of the Alameda Facility/Alameda Annex. The Defense Logistics Agency Defense Reutilization and Marketing Office (DRMO) operated a screening lot and scrapyard at IR02 until 1997. DRMO is responsible for the sorting, resale, and proper disposal of property declared to be excess by the DoD.

Surplus equipment that was transferred to IR02 for processing may have contained fuel, oil, coolants, and other liquids that may have leaked onto exposed surface soil. IR02 is essentially level, mostly unpaved, and completely enclosed by a chain-link, cyclone fence. The western portion of IR02 was used as a screening lot and for temporary equipment storage. The eastern portion of IR02 was used as a scrapyard and for temporary storage of discarded automobiles, stockpiled scrap metal, and surplus equipment. An aboveground diesel tank in the northern central section of IR02 was used to fuel heavy equipment and remains on site.

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

This section provides background information about Alameda Facility/Alameda Annex, including activities that led to the current environmental conditions, site investigations, and removal actions conducted to date.

2.2.1 Facility History

Until the 1920s, Alameda Facility/Alameda Annex and the surrounding area existed as undeveloped marshlands and tidal flats along the fringe of San Francisco Bay. The area south of the facility consisted primarily of residential properties. Before 1930, at least two large industrial sites (an oil refinery and a borax processing plant) were located on the western tip of Alameda Island. Several industries were located on the northern side of Oakland Inner Harbor, including two manufactured gas plants.

Many of these industries are believed to have stored and used hazardous materials and generated hazardous wastes during their daily operations and manufacturing processes (PRC Environmental Management Inc. [PRC] 1996a). In particular, lighter hydrocarbon byproducts and sludges laden with polynuclear aromatic hydrocarbons (PAH) are likely to have been discharged directly into the waters of San Francisco Bay or the Oakland Inner Harbor. Because many of these materials are lighter than water, they would have floated and been transported by tidal flows into the marsh by historical tidal channels. These materials are believed to have been deposited along the sides of the tidal channels and marsh surface. This deposited material is the marsh crust that currently exists between 10 and 20 feet bgs (at an average depth of 15 feet bgs) at Alameda Facility/Alameda Annex (PRC 1996a).

From 1900 to 1939, the area that now comprises Alameda Facility/Alameda Annex was covered with fill soil obtained from unknown sources (International Technology Corporation [IT] 1998); it is likely that the fill came from dredge spoils from the Oakland Inner Harbor. A commercial airport known as the San Francisco Bay Airdrome (Airdrome) was constructed in the mid-1920s in the current location of the facility's southern portion. The Airdrome consisted of a 2,500-foot runway, a passenger terminal, and an aircraft maintenance hangar. Aircraft maintenance would likely have involved use and storage of hazardous materials and generation of associated wastes in the form of solvents, paints, and petroleum-based products (such as aircraft fuel and lubricating oil). The Airdrome reached peak operation by 1932, serving about 11,000 customers per month. Then, in 1941, wartime activities at nearby NAS Alameda caused air traffic conflicts, resulting in closure of the Airdrome (PRC 1996a).

The U.S. Government purchased the property that now comprises Alameda Facility/Alameda Annex from the Regents of the University of California. An elongated piece of property, which consisted of multiple sets of railroad tracks and bisected Alameda Facility/Alameda Annex from east to west, belonged to the Southern Pacific Railroad. In 1946, the U.S. Government purchased the portion of the facility south of the Southern Pacific railroad tracks and in 1966, purchased the portion north of the Southern Pacific railroad tracks. Alameda Facility/Alameda Annex consists of two parts: the Alameda Facility (the portion north of Southern Pacific railroad tracks) and the Alameda Annex (the portion south of Southern Pacific railroad tracks). The property comprising the Alameda Facility was occupied by the Alameda Medical Depot of the U.S. Army as of 1945 and was later used by Sharpe Army Depot. In 1964, command of the Alameda Facility was transferred to the Naval Supply Center (NSC) Oakland. The property that comprises the Alameda Annex was assigned to NAS Alameda in 1951. In 1980, the Alameda Annex was transferred to NSC Oakland.

The facility, in conjunction with NSC Oakland, served as the main supply facility supporting DoD operations of military fleets and shore activities in the Pacific Basin. DRMO occupied warehouse space and former parking lots for display of saleable, general-surplus military goods. The Fleet Hospital Support Office used some of the warehouses and former parking lots to store hospital supplies. In 1996, Alameda Facility/Alameda Annex was designated for closure, and it was closed in September 1998 under BRAC. In June 2000, a Memorandum of Agreement for conveyance of the Fleet and Industrial Supply Center was signed between the Navy and the City of Alameda (Navy and City of Alameda 2000a). In July 2000, Alameda Naval Air Station East Housing facility was transferred to the Alameda Reuse and Redevelopment Authority, a Joint Powers Authority established by the City of Alameda And County of

Alameda and the Fleet and Industrial Supply Center Alameda was transferred to the City of Alameda by Quitclaim Deeds (Navy and Alameda Reuse and Development Authority 2000, and Navy and City of Alameda 2000b).

2.2.2 Environmental Investigations and Remedial Actions

Alameda Facility/Alameda Annex has undergone numerous investigations for environmental contamination and remedial action. These investigations and remedial actions are discussed below.

The Navy began investigating sites under the Installation Restoration Program (IRP) in the 1980s. Eight IRP sites were identified at Alameda Facility/Alameda Annex as a result of a preliminary assessment/site inspection (PA/SI) under CERCLA and a Resource Conservation and Recovery Act (RCRA) facility assessment (PRC 1996a).

A Federal Facility Site Remediation Agreement (FFSRA) between the Navy and the State of California was signed in 1992 for subsequent investigations and response actions. This FFSRA was amended in 2000.

An RI has been conducted at seven of the eight IR sites within Alameda Facility/Alameda Annex. No RI was conducted for Site IR01; the PA/SI report concluded that no further investigation was necessary at that site, because no evidence existed of a release of hazardous substances, pollutants, or contaminants. As part of the RI for IR02 through IR08, samples were collected of shallow soil (soil from the surface to 10 feet bgs), deep soil (soil from 10 feet to 22.5 feet bgs), and shallow and deep groundwater. Complete descriptions of these investigations can be found in the Alameda Facility/Alameda Annex RI report (PRC 1996a).

As a result of the RI, it was determined that two removal actions were warranted at three locations within IR02. Interim cleanup goals were identified by the RWQCB and the DTSC (PRC 1996b).

The first removal action involved contaminated soil near Buildings 365 and 366. An area west of Building 366, with surface soil contaminated with PCBs at concentrations up to 140 milligrams per

kilogram (mg/kg) was cleaned up to the interim cleanup level of 1 mg/kg. Soil was excavated from an area measuring 17 feet wide by 43 feet long, with excavation depths ranging from 2.5 to 3 feet bgs.

About

75 cubic yards (yd³) of soil was removed. When a confirmatory sample showed that PCBs remained at concentrations above 1 mg/kg along the western sidewall of the excavation, another 5.5 yd³ were removed and disposed of off site. The final five confirmation samples detected no PCBs at a detection limit of 0.033 mg/kg, verifying that the interim cleanup level of 1 mg/kg PCBs was achieved.

Also in 1996, an area south of building 365, with surface soil contaminated with lead at concentrations up to 26,600 mg/kg was remediated to a risk-based cleanup level of 324 mg/kg. Soil was excavated from an area measuring 27 feet wide by 48 feet long by 5 feet deep. About 240 yd³ of soil were removed and disposed of off site. When a confirmatory sample showed that lead remained along the western sidewall at concentrations above 324 mg/kg, an additional 4.5 yd³ was removed and disposed off site. The five final confirmation samples verified that the cleanup level of 324 mg/kg lead had been achieved.

A second removal action was completed in 1998 (Tetra Tech EM Inc. [TtEMI] 1998a) in an area in the south-central portion of IR02, where a concentration of 29 mg/kg PCBs was detected at a depth of 7 feet bgs. This sample was collected near the location of a sump next to a railroad track, where concentrations of total petroleum hydrocarbons (TPH) as diesel, gasoline, and motor oil were also elevated. An area of soil about 17 feet wide by 19 feet long by 7 feet deep was excavated (about 84 yd³) and disposed off site. Confirmation samples verified that the cleanup level of 1 mg/kg PCBs was achieved.

The FS for IR02 was finalized in 1999. A final RAP/ROD for addressing contamination of the marsh crust at Alameda Facility/Alameda Annex was signed on February 2, 2001.

2.2.3 Enforcement Activities

No enforcement actions are pending at Alameda Facility/Alameda Annex and none have been taken in the past.

2.3 HIGHLIGHTS OF COMMUNITY PARTICIPATION

The Navy formed a Restoration Advisory Board (RAB) consisting of members of the Navy, the community, and regulatory agencies in March 1995 for Alameda Facility/Alameda Annex. The RAB meets regularly and provides input into cleanup at the installation. The RAB is also a source of information regarding future anticipated land use and potential beneficial uses of groundwater.

The RI report for Alameda Facility/Alameda Annex was finalized in January 1996 (PRC 1996a). The feasibility study (FS) report for contaminated soil at IR02 was finalized in January 1999 (TtEMI 1999b). The proposed plan for IR02 was made available to the public on April 2, 2001. The RI report, FS report, proposed plan, and draft RAP/ROD were made available to the public through the information repositories, which contain the administrative record index (see Appendix A) and materials related to the environmental cleanup program at Alameda Facility/Alameda Annex. The information repositories are located at the Alameda Public Library, 220 A Central Avenue, Alameda and the Alameda Point Library, 950 West Mall Square, Main Office Building (Building 1), Alameda Point, Alameda. In accordance with the California Environmental Quality Act, DTSC has conducted an Initial Study for the selected remedy. A proposed Negative Declaration required by CEQA was also made available through the information repositories (see Appendix B). The notice of availability for the proposed plan, RAP/ROD, and Negative Declaration was published in the Oakland Tribune and the Alameda Times on April 2, 2001. A public comment period was held from April 2 to May 2, 2001. A public meeting was held on April 19, 2001. At the meeting, representatives from the Navy, DTSC, EPA, and RWQCB answered questions about the proposed plan and the preferred alternatives. A response to comments received during the public comment period is presented in the responsiveness summary, which is included as Appendix C of this RAP/ROD. These activities fulfill the requirements of CEQA, the HSAA (HSC Section 25356.1), CERCLA community participation requirements of Sections 113 (k)(2)(B)(i-v) and 117(a)(2), and the NCP, 40 CFR Section 300.430(f)(3).

2.4 SCOPE AND ROLE OF RESPONSE ACTION FOR ALAMEDA FACILITY/ ALAMEDA ANNEX

This RAP/ROD selects the final, comprehensive remedial action for the contaminated soil at the planned residential portion of IR02 at Alameda Facility/Alameda Annex. It is also the comprehensive remedial action to address all soil contaminants at the planned industrial portion of IR02 except for PAH

contaminants. The remedy will be conducted in accordance with CERCLA and the NCP. This is the second RAP/ROD for Alameda Facility/Alameda Annex. A RAP/ROD for the marsh crust at Alameda Facility/Alameda Annex was signed on February 2, 2001. RIs were conducted at seven sites at the Alameda Facility/Alameda Annex from June 1992 through January 1996 under the Navy's installation restoration program (IRP), in accordance with the 1992 FFSRA and its 2000 amendment. A supplemental RI/FS and RAP/RODs will be completed in the future for the other IR sites at Alameda Facility/Alameda Annex.

2.5 SITE CHARACTERISTICS

This section provides a comprehensive overview of the facility, including natural, historic and archeological resources, geology and hydrogeology and the probable sources and extent of contaminants detected in samples from the contaminated soil of IR02 of Alameda Facility/Alameda Annex.

2.5.1 Natural Resources

The Alameda Facility/Alameda Annex facility is part of the greater ecosystem of the San Francisco Bay, which is the largest coastal embayment on the Pacific Coast and home to a diverse ecological community. The Oakland Inner Harbor, which is an arm of the San Francisco Bay, is adjacent to the northern boundary of the facility. The shoreline of Oakland Inner Harbor is almost entirely modified by human activity, and a variety of industries are located along its entire length, including port facilities, ship building and repair facilities, sand and gravel off-loading areas, and marinas. Ornamental trees and shrubs and small grass lawns characterize landscaped areas around facility office buildings. Aquatic areas are present on the northern portion of the facility, bordering the Oakland Inner Harbor. Four species, classified as endangered by both state and federal governments, inhabit the vicinity of the Oakland Inner Harbor: the California least tern, the peregrine falcon, the California brown pelican, and the winter run Chinook salmon (Port of Oakland/U.S. Army Corps of Engineers 1994). Although birds, including California brown pelicans, double-crested cormorants, and several species of gulls, and harbor seals have been observed in the area of the Harbor, these species do not nest or feed in the area of IR02, because there is no supporting habitat.

2.5.2 Historic and Archeological Resources

JRP Historical Consulting Services conducted a study in February 1996 to identify significant historic property in the areas of the facility (Navy and City of Alameda 1996). The study evaluated the eligibility of buildings and structures on the facility for inclusion in the National Register of Historic Places (NRHP). Based on the results of the study, none of the buildings or structures on the facility is eligible for listing in the NRHP. The California State Historic Preservation Officer has concurred that no buildings or structures at the facility are eligible for listing in the NRHP (Hemstock 1996).

A search for cultural resource materials at Northwest Information Center of the California Historical Resource Information System at Sonoma State University showed that a low probability exists of finding archeological sites at the facility. An archeological survey was conducted at the facility during 1996 by PAR Environmental Services, Inc. (PAR), and no archeological resources were identified. The survey report concluded that because the area consists of artificial fill emplaced on undeveloped marshland, the potential for buried cultural resources is low (PAR 1996).

2.5.3 Geology

Surface and near-surface soil at Alameda Facility/Alameda Annex consists of artificial fill emplaced during historical filling of the tidal marshlands and postfill construction during site development. The fill material is characterized by sands, clays, and silts dredged from the tidal flats in the region and mixed with material from the Merritt Sand Formation. The fill is present to depths ranging from about 10 feet bgs in the northern portion of the facility to 20 feet bgs in the southern portion. The marshland layer underneath the artificial fill material on the facility was observed during investigations to be an organic-rich peat and grass layer that is about 2 to 6 inches thick, at depths that range from about 10 to 20 feet bgs (PRC 1996a). This peat and grass layer was also recognized during previous geotechnical investigations and was termed the marsh crust (Lee and Prazsker 1979). Immediately below the marsh crust layer is the Bay Mud layer, which underlies the fill material across the entire site. The Bay Mud consists of recent sediments deposited in an estuarine environment. The Merritt Sand Formation underlies the Bay Mud across most of the facility.

2.5.4 Hydrogeology

Fill material above the Bay Mud Formation constitutes the shallow, unconfined water-bearing zone beneath Alameda Facility/Alameda Annex, including IR02. Groundwater is usually first encountered between 4 and 6 feet bgs. The Bay Mud forms an aquitard between the shallow groundwater and the Merritt Sand that composes much of the deeper confined aquifer beneath the facility (PRC 1996a). Groundwater flow in the deeper aquifer was determined to be west-southwest in August 1992 and to the northeast in January 1993 (PRC 1993). The shift in flow in the deeper confined aquifer is believed to be the result of tidal influence. Regional groundwater in the shallow aquifer flows to the northwest, toward the Oakland Inner Harbor. Therefore, groundwater generally flows off site into the Oakland Inner Harbor. Aquifer tests indicate that the Bay Mud aquitard acts as an effective hydraulic barrier between the confined aquifer and the unconfined water-bearing zone.

2.5.5 Contamination in Surface and Subsurface Soil

A site investigation (SI) was conducted at IR02 in 1987 (ERM-West 1987). The SI involved a review of aerial photographs, collection of 30 shallow soil samples, installation and development of seven groundwater monitoring wells, collection of groundwater samples, and analysis of soil and groundwater samples for priority pollutants. The sampling strategy involved soil sampling points that were randomly located, and some potential contamination source areas were not sampled, because they were buried beneath scrap piles. Samples were collected at depths ranging from 18 to 30 inches bgs. No deeper soil samples were collected and analyzed for contaminants.

Soil samples during the SI were analyzed for priority pollutant metals, asbestos, PCBs, volatile organic compounds (VOC), semi-volatile organic compounds (SVOC) and extractable organic compounds. Groundwater samples were analyzed for priority pollutant metals, VOCs, and SVOCs. Nearly all soil and groundwater samples contained detectable concentrations of metals and organic compounds (VOCs and SVOCs). Generally, the results of the SI soil sample analysis indicated that concentrations of metals and organic compounds were highest in soil samples collected near Building 365 (prior to the removal action). PCBs were detected in 3 out of 30 soil samples. Asbestos was not detected in any of the soil samples. Antimony and selenium were the only two priority pollutant metals not detected in soil at IR02.

Although contamination was detected in nearly all soil and groundwater samples collected during the SI, only four areas were identified as potential contamination sources. These areas appear to be associated with DRMO operations and activities. A review of historical aerial photographs of IR02 confirmed that the four areas where DRMO operations have been concentrated have had visible soil staining since the 1950s (ERM-West 1987). These areas include: (1) Building 365, (2) the scrap bin area adjacent to the railroad tracks on the southern boundary of IR02, (3) the area west of Building 366, and (4) the storage area just west of the main entrance gate, on the northern boundary of IR02.

2.5.6 Remedial Investigation

A complete discussion of the RI can be found in the Alameda Facility/Alameda Annex RI report (PRC 1996a). Phase I and II RI field activities were conducted between June and November 1992 and between March and September 1994, respectively. Phase I field activities focused entirely on IR02 and included site surveying; surface geophysical surveying; soilgas surveying; sampling and analysis of soil, sediments, groundwater, and air; and a hydrogeological investigation. During Phase II, field activities were conducted at several additional sites at Alameda Facility/Alameda Annex, and further soil and groundwater samples were collected at IR02. The Alameda Facility/Alameda Annex RI field work also included air monitoring, a soilgas survey, and a radiological investigation.

At the completion of the RI field investigation, a total of 396 soil samples had been collected from 75 soil borings and 31 monitoring wells on Alameda Facility/Alameda Annex. Soil samples were obtained at depths ranging from 0 to 22.5 feet bgs. Groundwater samples had been collected during one round of sampling from six wells in Phase I and during four rounds of sampling of 29 wells during Phase II. Not all wells were sampled in each sampling round, so only 79 groundwater samples were collected. Also, at IR02 specifically, 10 sediment samples and 10 surface water samples were collected from small temporary ponds that accumulated on site after rainstorms.

As discussed earlier, a removal action was completed after the RI to remove soil contaminated with lead and PCBs in the areas near Buildings 365 and 366, respectively. A second removal addressed PCB-contaminated soil in the south-central portion of IR02.

RI results indicate that SVOCs, TPH, and metals are widely distributed in soil, sediments, groundwater, and ponded water at the site. PCBs were found mostly in surface soils at the site. No underground items of environmental significance were identified during the geophysical survey, and no significant amount of airborne contaminants was identified during the air monitoring.

2.6 CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

This section discusses the current and reasonably anticipated future land uses and current and potential groundwater uses at Alameda Facility/Alameda Annex and specifically, IR02. It also discusses the basis for assumptions on future use.

2.6.1 Demography and Land Use

Alameda Facility/Alameda Annex is located in the City of Alameda. Land use has been industrial since the land was created from fill between 1887 and 1939. Since 1998, Alameda Facility/Alameda Annex has been closed and IR02 has been completely enclosed by a chain-link cyclone fence.

The Oakland Inner Harbor, which is north of Alameda Facility/Alameda Annex, contains a ferry terminal, shipyards, several marinas, and yacht clubs. The area east of Alameda Facility/Alameda Annex encompasses commercial and industrial properties, including the former location of a Phillips Petroleum bulk storage plant. The area south of Alameda Facility/Alameda Annex consists of residential developments, including housing, elementary schools, a middle school, and the College of Alameda (PRC 1996a). The area west of Alameda Facility/Alameda Annex is occupied by the Alameda Point facility and includes industrial and residential land uses.

The entire Alameda Facility/Alameda Annex facility has undergone base closure. The Navy transferred title to the property to the City of Alameda on July 17, 2000 pursuant to an Economic Development Conveyance conducted as an early transfer under CERLCA Section 120 (h)(3). As part of the overall plan for redevelopment of the property, the Alameda Reuse and Redevelopment Authority (ARRA) has determined that the western one-third of IR02 will be developed for residential use and the eastern two-thirds will be developed for industrial use.

2.6.2 Ground and Surface Water Uses

The Navy conducted and the RWQCB approved a basewide groundwater beneficial use study to evaluate existing and potential beneficial uses of groundwater at Alameda Facility/Alameda Annex (TtEMI 1999e). The evaluation of beneficial uses found that shallow groundwater has no existing or potential beneficial use as domestic or municipal water supply or for freshwater replenishment. The Alameda Facility/ Alameda Annex is now closed and state and county prohibitions on well construction prevent shallow groundwater from being extracted and used for any purpose.

The finding of no beneficial use for domestic and municipal water supply is primarily based on high total dissolved solids (TDS) concentrations and low potential well yield in the shallow aquifer. It is 200 to 300 feet to the next aquifer of usable quality and adequate yield. For the same reasons and because expected well yield is not generally sufficient, the shallow groundwater at Alameda Facility/Alameda Annex has only limited beneficial uses as an agricultural or industrial water supply. Furthermore, shallow groundwater at Alameda Facility/Alameda Annex never has been a source for municipal, domestic, industrial, or agricultural use, and no future use of shallow groundwater is planned. Water always has been and will continue to be supplied to Alameda Facility/Alameda Annex by the East Bay Municipal Utility District. This is consistent with the land use development plan approved by the City of Alameda and the property transfer documents that accompanied the transfer of Alameda Facility/Alameda Annex and the Alameda East Housing property. A detailed discussion of the findings of the study is presented in the final basewide groundwater beneficial use report for Alameda Facility/Alameda Annex (TtEMI 1999e).

No surface water bodies are located on IR02. As discussed earlier, the Oakland Inner Harbor borders the Alameda Facility/Alameda Annex to the north, over 1500 feet from the boundary of IR02.

2.7 SUMMARY OF SITE RISKS

A human health risk assessment (HHRA) was conducted at IR02 as part of the final RI report for the Alameda Facility/Alameda Annex facility (PRC 1996a). An updated risk assessment was conducted in January 1999 as part of the IR02 FS at the request of the regulatory agencies to accommodate changes in established toxicity values and exposure parameters since the initial HHRA. This section summarizes the

results of these HHRA's and the ecological risk assessments (ERA) conducted for the soil at IR02 and Alameda Facility/Alameda Annex.

2.7.1 Summary of Human Health Risk Assessment

The baseline risk assessment estimates the risks the site will pose if no action were taken. It provides the basis for action and identifies the contaminants and exposure pathways that should be addressed by the remedial action. This section of the RAP/ROD summarizes results of the baseline risk assessment for the soil at IR02.

2.7.1.1 Identification of Contaminant of Concern

Contaminants of potential concern (COPC) identified at IR02 fall into five categories: PCBs, metals, VOCs, SVOCs, and TPH. Many of these contaminants appear to originate from former industrial facilities that operated in the region, including two manufactured gas plants and an oil refinery. Contaminants of concern (COC) are derived from the COPCs and the process for determining COCs is explained below.

All COPCs found at IR02 during the RI were evaluated for human health risks and hazards expressed as the excess lifetime cancer risk (ELCR) for carcinogenic compounds and the hazard index (HI) for non-carcinogenic compounds. Any COPC found to have an ELCR greater than 10^{-6} or an HI of greater than 1.0 was considered to be a COC. Because the NCP defines unacceptable risk levels as contaminant concentrations that exceed an ELCR of 10^{-4} , some COC concentrations fall within the 10^{-4} to 10^{-6} target risk management range. Within this target risk range, risk management decisions are made to determine whether remedial action is warranted to address the COC.

Several metals that exceeded the ELCR or HI were determined not to be COCs, because they were present at concentrations that were the same or below ambient levels found at the College of Alameda, which is just south of IR02. The College of Alameda is part of an existing residential development that was never used for commercial or industrial purposes. Samples from the college, while not necessarily representative of natural background levels, were used as reference samples with which to compare samples from the historically industrial setting of IR02. To make the COC determination regarding

metals, the upper

95 percent confidence level of the value of the mean (UCL₉₅) of each metal was compared with the UCL₉₅ of the same metals at the College of Alameda. Metals were eliminated as COCs if their UCL₉₅ was less than the UCL₉₅ at the college.

2.7.1.2 Exposure Assessment

The HHRA exposure assessment identified pathways by which contaminants can be released from the site into the environment. The exposure assessment also identified human receptors that may be exposed to these contaminants.

The following exposure pathways were evaluated for soil at IR02: inhalation of dust and volatilized contaminants, soil ingestion, dermal contact with contaminated soil, and ingestion of produce grown on contaminated soil. For ponded water, ingestion and dermal contact pathways were evaluated. Only one exposure pathway, inhalation of volatilized contaminants, was evaluated for groundwater, because shallow groundwater at Alameda Facility/Alameda Annex has been determined to be nonpotable because of naturally high levels of TDS.

The potential for carcinogenic and noncarcinogenic human health effects under current and future exposure scenarios were evaluated. Potential receptors for current land use were off-site residential receptors (adults and children) and on-site industrial receptors (site workers and construction workers). Off-site residential receptors were only evaluated for the dust inhalation pathway. Current exposure scenarios evaluated were limited to soil at depths from 0 to 0.5 foot bgs. Potential receptors for future land use were on-site residents (adults and children), site workers, and construction workers. Future exposure scenarios were evaluated for the soil from the surface to the groundwater table to allow for new construction and excavation activities. No sensitive subpopulations, such as farm families or subsistence fishermen, were identified at IR02.

2.7.1.3 Toxicity Assessment

Toxicity factors, including cancer slope factors (CSF) for estimating risk, and reference doses (RfD) for estimating HI, are used to quantitatively evaluate chemical toxicity. These toxicity factors are updated

by the EPA when new or revised chemical toxicity information becomes available. For example, CSFs for PCB were revised since the HHRA in the final RI and were incorporated in the FS.

Three PCB isomers were identified as COCs at IR02: Aroclor 1016, Aroclor 1254 and Aroclor 1260. Slope factors for these COCs were derived from EPA's "PCBs: Cancer Dose-Response Assessment and Application to Environmental Mixtures" (EPA 1996). The original HHRA used a cadmium oral RfD for water of $5.0\text{E-}04$ mg/kg/day in the evaluation of exposure to soil. A more appropriate oral RfD developed for consumption of food, $1.0\text{E-}3$ mg/kg/day (EPA 1998) was used in the updated risk assessment to evaluate exposure to cadmium in soil and garden produce.

2.7.1.4 Risk Characterization

The risk characterization summarizes and combines outputs of the exposure and toxicity assessments to characterize baseline risks, both in quantitative expressions and qualitative statements.

After the last removal action was completed at IR02 in 1998, the RI database was updated to reflect the risk reduction achieved by the removal actions. Data representing the soil that was excavated were removed from the database. The updated database was then used to estimate risk and map locations of remaining contaminants.

The COCs were cadmium and PCBs. Table 1 provides a summary of the baseline site risks and exposure scenarios for these COCs.

2.7.2 Ecological Risk Assessment

A qualitative ecological risk assessment conducted during the RI concluded that there are no endangered species present at IR02, and that limited and unsuitable habitat, a scarcity of mammalian receptors, and site soil conditions limit the potential for adverse effects to terrestrial biota. The risk assessment recommended no further evaluation or action for terrestrial habitats or associated ecological receptors (TtEMI 1998b).

2.7.3 Basis for Action

The response action selected in this RAP/ROD is considered to be necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

2.8 REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAO) are either medium or Operable Unit-specific goals for protecting human health and the environment. RAOs specify (1) each COC, (2) the exposure route and each receptor, and (3) an acceptable contaminant concentration or range of concentrations for each exposure pathway and medium. RAOs discussed below were developed for the three exposure routes that the Navy identified.

The results of the HHRA (PRC 1996a) showed that the principal threats to human health under future industrial and residential land use scenarios come from the pathways for dermal contact with soil, as well as inhalation and ingestion of soil. These threats come from two COCs, PCBs and cadmium. Figure 2 shows the areas of contamination where these COCs were found in excess of PCB or cadmium cleanup levels.

RAOs for contaminated soil at IR02 are:

- Prevent ingestion of, direct contact with, or inhalation of PCBs in contaminated soil in the 0 to 1-foot bgs interval in excess of concentrations that exceed an ELCR of 10^{-4} by future residents.
- Prevent ingestion of, direct contact with, or inhalation of PCBs in contaminated soil in the 0 to 1-foot bgs interval in excess of concentrations that exceed an ELCR of 10^{-4} by current or future workers.
- Prevent ingestion of or direct contact with cadmium-contaminated soil in the 0 to 1-foot bgs interval in excess of concentrations that exceed a hazard quotient of 1 by future residents.

The residential and industrial cleanup levels selected for contaminated soil to achieve these RAOs are 1 ppm and 10 ppm, respectively, for PCBs. The Navy selected these risk-based levels under the authority of 40 CFR 761.61(c) and based on information in the FS as well as EPA's guidance entitled "Guidance on Remedial Actions for Superfund Sites with PCB Contamination" (EPA 1990).

For cadmium, the residential and industrial cleanup levels are 12 ppm and 450 ppm, respectively, as determined by risk-based calculations for the residential and industrial scenarios. Cadmium levels at IR02 did not exceed the industrial cleanup level of 450 ppm, therefore, there is no RAO required for cadmium contamination for the industrial scenario.

2.9 DESCRIPTION OF ALTERNATIVES

This section provides a concise description of the alternatives considered to address contamination in the soil at Alameda Facility/Alameda Annex.

Six alternatives, including the no action alternative, were carried through the FS. These alternatives include:

- Alternative 1: No action
- Alternative 2: Land Use Controls
- Alternative 3: Soil Consolidation and Placement under a Single-layer Soil, Concrete or Asphalt Cap and Land Use Controls
- Alternative 4: Excavation, Off-site Disposal and Land Use Controls
- Alternative 5: Excavation, On-site Soil Washing and Land Use Controls
- Alternative 6: Excavation, On-site Emulsion Recycling and Land Use Controls

Although Alternative 2 was carried through the FS, it is not discussed further in this RAP/ROD. When the alternative was first developed for the FS in 1999, the terms for transferring Alameda

Facility/Alameda Annex were still under discussion among the Navy, the City of Alameda and the DTSC. At the same time, land use plans for IR02 were also incomplete. Alternative 2 was developed based on the assumption that effective land use controls could be incorporated into future property transfer documents, such as deeds and covenants. The goal of the land use controls would have been to preserve industrial land use for most of IR02 while protecting the on-site worker. It is now understood that land use controls alone cannot address the risk to future on-site workers; remedial action will be necessary. Since Alternative 2 (land use controls) no longer meets the threshold criteria of protecting human health, it was dropped from further consideration in this RAP/ROD.

Alternative 1: No Action. The no action alternative involves no remedial action and would leave contaminated soil in place as it is currently distributed.

Key components of this no action alternative are as follows:

- No restrictions, controls, or active remedial measures are applied to the site.
- The no action alternative is required by the NCP to serve as a baseline for evaluating other alternatives.

Common elements and distinguishing features of the no action alternative are as follows:

- No applicable or relevant and appropriate requirements (ARAR) apply to this alternative.
- This alternative is not reliable in the long term to protect public health and the environment.
- No material would be removed or treated, disposed of off site, or managed on site in a containment system under this alternative.
- Residual risk would remain at the site.

Estimated time for implementation:	None
Estimated time to meet RAOs:	Indefinite
Estimated capital cost:	None
Estimated annual O&M cost:	None
Estimated total present worth cost:	None

The expected outcome of the no action alternative is as follows:

- No impacts to the community, current occupants, workers, or the environment are associated with the no action alternative, because this alternative would involve no construction.
- Neither industrial nor residential land uses will be possible with this alternative.

Alternative 3: Soil Consolidation and Placement Under a Single-layer Soil, Concrete, or Asphalt Cap and Land Use Controls. This alternative includes consolidation of contaminated soil on the planned industrial area, installation and long-term maintenance of a single-layer soil, concrete or asphalt cap over the consolidated soil and land use controls. First, soil contaminated in excess of 1 ppm PCB or 12 ppm cadmium at the planned residential area will be excavated and relocated to the planned industrial area and placed on top of existing contamination in the industrial area. Likewise, on the planned industrial area soil contaminated with PCBs and cadmium in excess of 10 and 450 ppm, respectively, will also be brought under the cap. Any excavated soil that exceeded 50 ppm PCB or concentrations of PCB or cadmium that would qualify it as a California hazardous waste would be segregated and disposed off site in either a TSCA permitted facility or in a Class I landfill. The capped area will be graded so that it will be available for industrial land use. Land use controls will be implemented for the planned industrial portion to prohibit residential land use. This alternative would minimize direct contact with contaminated soil and reduce the mobility of contaminants by preventing dispersion as windborne dust or migration through runoff. The cap would limit any infiltration from precipitation.

Key components of the soil consolidation, single-layer cap and land use controls alternative are:

- Site preparation activities, including utility clearance and removal of structures and concrete
- Excavating and relocating of contaminated soil from the planned residential area on the western portion of the site to the planned industrial area on the eastern portion of the site
- Sampling during implementation that will be used to determine whether any portions of the excavated soil contains concentrations of PCBs or cadmium that would define the soil as a California hazardous waste (due to cadmium or PCBs) under 22 CCR 66261.24. Sample analysis would also determine whether PCBs in the soil exceeded 50 ppm. If any of these conditions exist, that portion of excavated soil will be staged separately from the less contaminated soil and subsequently disposed off site in a Class I landfill or in a permitted PCB disposal facility. Data from the RI indicates that very little of the surface soil at IR02 will meet the conditions requiring off-site disposal in a Class I landfill or permitted PCB disposal facility.
- Consolidation of contaminated soil under a 10-inch soil or 6-inch concrete or asphalt cap

- Backfilling the excavations with clean fill from an off-site source
- The Navy has included Environmental Restrictions addressing IR02 land use controls pursuant to California Civil Code Section 1471 in the deed transferring title to FISC Alameda to the City of Alameda on July 20, 2000. The Environmental Restrictions require that IR02 not be used for residential purposes and construction activities shall not begin until the Navy and DTSC have determined that the soils having PCB and cadmium concentrations have been properly remediated and the Navy has recorded a release terminating the restrictions.
- Covenants to limit activities involving human contact with contaminated soils may be added to covenants already negotiated between state and municipal stakeholders. The covenants would incorporate environmental restrictions in the deed, as described above. Such restrictions would run with the land and would be for the benefit of, and enforceable by, the state. In addition, the covenants would be binding on future owners and occupants of the property.
- Long-term O&M of the cap to ensure its continuing integrity

The following are common elements and distinguishing features of the consolidation and single-layer cap alternative:

- The substantive requirements in 40 CFR 761.61 are chemical- and action-specific ARARs that are relevant and appropriate because these requirements address problems or situations that are sufficiently similar to the circumstances at IR02 and the requirement is well-suited to this alternative. Specifically, relevance and appropriateness is determined by comparing the site circumstances to factors found in 40 CFR 300.400(g)(2)(iv), (vi) and (vii). Comparing these factors to the remedial action, the Navy found direct correspondence between: the regulated action and the remedial action; the type of place regulated and IR02; and the type and size of the regulated facility and the Alameda Facility/Alameda Annex. Most of the requirements are based on the concentration of PCBs measured in contaminated soil. Measurement of PCB concentrations in excavated soil during implementation of Alternative 3 will be conducted to determine how to comply with these ARARs. Three options for cleanup and disposal of PCB remediation waste are presented in 40 CFR 761.61: a “self-implementing option, a “performance-based disposal” option, and a “risk-based disposal approval” option. Each of these options may be relevant and appropriate for this alternative, however only the “self-implementing” option contains quantitative cleanup levels for PCB remediation waste. The substantive ARAR in 40 CFR 761.61(a)(4)(i)(A) for the residential, or “high occupancy” area is 1 ppm, without further restrictions placed on the site. PCB concentrations up to 10 ppm may be left on a planned residential land use site if the contamination is contained by a single-layer cap of concrete or asphalt (6 inches) or soil (10 inches). The substantive ARAR in 40 CFR 761.61(a)(4)(i)(B) for the industrial, or “low occupancy”, area is 25 ppm, without further restrictions and 100 ppm with a concrete, asphalt or soil cap. The cap will comply with the industrial cleanup level for the industrial/commercial area. The third option, the risk-based disposal approval (40 CFR 761.61(c)) allows for the Navy to use a risk-based approach (rather

than the self-implementing or performance-based options) for selecting cleanup levels. As described previously in Section 2.8, the Navy has chosen to use this third option for the determination of the residential and industrial cleanup standards for IR02.

- Section 761.61(a)(5)(i)(B)(2)(iii) requires that PCB remediation waste ≥ 50 ppm taken off site must be disposed of in a landfill permitted under Section 3004 of RCRA (referred to as a Title C landfill) or a permitted PCB disposal facility, such as an incinerator. In California, a state that is authorized to implement the RCRA Program, a Title C landfill is equivalent to a Class I landfill. Only one of the PCB concentrations measured in the 0 to 1-ft-bgs interval IR02 was measured in excess of 50 ppm; the highest measured concentration was 51 ppm. Assuming that additional sampling during implementation gives similar results, little of the contaminated soil excavated from the planned residential area will require disposal off site. All soil will be consolidated and capped on the planned industrial property in accordance with the requirements of 40 CFR 761.61(a)(4)(9), which allow for capping of PCB concentrations up to 10 ppm with a 6-inch concrete or asphalt cap or a 10-inch soil cap.
- Cadmium contamination in the soil excavated from IR02 might be high enough to cause the soil to be considered a non-RCRA hazardous waste, independent of PCB concentrations. This would occur if cadmium concentrations were to exceed the Maximum Concentration for the Toxicity Characteristic specified in California Code of Regulations (CCR) Title 22 Section 66261.24(a)(1)(B). This ARAR uses EPA's Test Method 1311, Toxicity Characteristic Leaching Procedure (TCLP) to determine if the regulatory level of 1.0 mg/l is exceeded and the soil is therefore a characteristic hazardous waste. Further, the cadmium should be compared to levels in 22 CCR 66261.24(a)(2)(A) that define non-RCRA hazardous wastes. Specifically, the soil would be subjected to the waste extraction test (WET) and the result compared to the soluble threshold limit concentration (STLC) in 22 CCR 66261.24(a)(2)(A) which is 1.0 mg/l. If the result is higher than the STLC, the soil is considered a non-RCRA hazardous waste. Non-RCRA hazardous wastes must be disposed in Class I landfills. To determine whether TCLP analysis is actually needed during sampling and segregation, a general rule of thumb can be used. Specifically, the total waste concentrations (expressed in milligram per kilograms or parts per million) are compared to the TCLP regulatory level (expressed in milligrams per liter) by dividing the total waste concentration by 20, which is the dilution factor used in the TCLP test (EPA 1993). If the result is below the TCLP regulatory level, it is assumed that the waste is not considered to be a characteristic hazardous waste based on the total waste concentration alone. For cadmium, this means a total waste concentration of 20 mg/kg or less. If the result is above the TCLP regulatory level, the waste is not automatically assumed to be characteristic hazardous waste. However, EPA guidance suggests that the determination must be made using more than just the total waste concentration data. A similar comparison is provided in 22 CCR 66261.24(a)(2)(A) using the Total Threshold Limit Concentration (TTLC). If the total waste concentration is less than the specified regulatory value of 100 mg/kg, the soil is not considered a non-RCRA hazardous waste. The highest cadmium concentration measured at IR02 was 81 mg/kg. In summary, if analysis of the soil detects cadmium greater than 100 mg/kg, the soil will be assumed to be a non-RCRA hazardous waste and will be disposed off site in a Class I landfill. If the cadmium in the soil falls between 20 mg/kg and 100 mg/kg, a TCLP test may be warranted and if the result is greater than 1 mg/l, the soil will be considered a characteristic hazardous waste and will be disposed in

a Class I landfill. If the cadmium concentration in the soil is below the 20 mg/kg level the soil will be placed under the cap.

- Accurate waste classification is necessary to determine the substantive requirements that will apply to the cap in the planned industrial area. As described above, any soil determined to be a non-RCRA hazardous waste will be disposed off site in a Class I landfill. Under 40 CFR 761.61(a)(5)(i)(B)(2)(ii), soil contaminated with PCBs < 50 ppm may be disposed of in a permitted state municipal landfill or a nonhazardous, nonmunicipal landfill (referred to as a Class III landfill). The soil, concrete or asphalt cap specified in 40 CFR 761.61(a)(4)(i)(A) will meet this requirement found in 27 CCR 20260 and 21140. However, under CCR Title 27 Section 20210, the contaminated soil may be considered a “designated waste,” requiring disposal in a more conservative Class II landfill. A “designated waste” is defined as a waste that “contains, pollutants that, under ambient environmental conditions at the waste management unit, could be released at concentrations in excess of applicable water quality objectives or could cause degradation of waters of the state.” This determination is made on a site-specific basis using the California RWQCB guidance “Designated Level Methodology for Waste Classification and Cleanup Level Determination” (Cal RWQCB 1989). The guidance provides a calculation to determine a site-specific Designated Level to which the results of the WET can be compared. The attenuation factor for a contaminant is the main variable in the calculation. When the attenuation factor is high, the waste is less likely to leach and cause water quality problems. In general, the attenuation factor increases with these site-specific factors: increased clay content, increased organic matter content and lower pollutant mass loading. The RI has shown that these conditions exist at IR02 and groundwater studies confirm that PCBs and cadmium are not leaching into groundwater, so it is unlikely that the soil would be defined as a California designated waste. Nevertheless, the results of the WET will be evaluated during excavation and sampling to determine whether California designated wastes are present and whether they require off-site disposal or can be safely placed on site under the cap.
- The Navy and DTSC have identified state statutes as ARARs for implementing land use controls and entering into a land use covenant and agreements that include substantive provisions of California Civil Code Section 1471 and California HSC Sections 25202.5 and 25222.1.
- Pursuant to Assembly Bill 871, which became effective on January 1, 1999, DTSC is required to maintain a list of all land use restrictions recorded pursuant to HSC Sections 25200, 25200.10, 25202.5, 25222.1, 25229, 25230, 25355.5, and 25398.7. At a minimum, this list must provide the street address, or if a street address is not available, an equivalent description of location for a rural location or the latitude and longitude of each property. DTSC is also required to update the list as new land use restrictions are recorded, and make the list available to the public, upon request, and place the list on the DTSC Internet website.
- The substantive provision of Civil Code Section 1471 is the following general narrative standard: “...to do or refrain from doing some act on his or her own land...where...(c) Each such act relates to the use of land and each such act is reasonably necessary to protect present or future human health or safety or the environment as a result of the presence on the land of hazardous materials, as defined in Section 2560 of the Health and Safety Code.” This narrative standard would be implemented through incorporation of

restrictive environmental covenants in the deed at the time of transfer. These covenants would be recorded with the environmental restriction covenant and agreement and run with the land.

- The substantive provision of HSC Section 25202.5 is the general narrative standard to restrict “present and future uses of all or part of the land on which the ...facility...is located...” These substantive provisions will be implemented by incorporation of restrictive environmental covenants in the environmental restriction covenant and agreement at the time of transfer, for purposes of protecting present and future public health and safety.
- Excavation and disposal activities would be conducted, to the maximum extent practicable, consistent with the San Francisco Bay Plan (revised June 1998), because they may affect resources of the coastal zone at adjacent facilities. In addition, the Navy has identified Section 5650 of the California Fish and Game Code as relevant and appropriate for Alternative 3. Section 5650 prohibits deposition of materials deleterious to fish into waters of the state. Excavation would be conducted in a manner that would prevent the deposition of contaminated material into the Inner Harbor that could be deleterious to birds or fish that live there.
- Several Bay Area Air Quality Management District (BAAQMD) regulations are potential ARARs for excavation activities. First, substantive requirements in BAAQMD Regulations 6 and 8-40 would be ARARs for excavation. Specifically, Regulations 6-301, 6-302, and 6-305, which specify standards for particulates and visible emissions, are applicable to limit dust and particulates emissions during excavation and removal of soils. The Navy would take appropriate actions, such as water spraying, to control dust emissions during excavation and transport.
- The requirements for staging piles at 40 CFR 264.554 are relevant and appropriate requirements for this alternative. Specifically, 264.554 (a), (d), (g), (h) and (j) contain substantive requirements for the staging pile at IR02.
- This alternative is reliable in the long term to protect the public health and the environment as long as the cap is maintained.
- Residual risk would remain on the planned industrial area of the site; however, human health would be protected as long as cap integrity was maintained and the prohibition on residential land use is enforced.

Estimated time for design/construction:	About 6 months
Estimated time to meet RAOs:	Immediately upon completion
Estimated capital cost:	\$ 338,090
Estimated 5-year review cost:	\$ 5,000
Discount rate:	7 percent
Performance period for 5-year review:	30 years
Estimated total present worth cost:	\$ 365,800

Expected outcomes of the consolidation and single-layer cap alternative are:

- About 6 months would be required to mobilize and construct this alternative.
- After completion of this alternative, residential land use will be available on the residential portion. Industrial and commercial land uses will be available for the eastern portion of the site.
- Minimal impacts to the community and the environment are associated with implementation of this alternative. Excavation, traffic and construction activity may create some short-term dust and noise impacts on the surrounding community.
- Risks to workers during implementation can be minimized through engineering controls and proper health and safety protocols.

Alternative 4: Excavation, Off-site Disposal and Land Use Controls. This alternative involves removing contaminated soil from both the planned residential (western) area and from the planned industrial (eastern) area of IR02. In the planned residential area, soil contaminated with PCBs and cadmium in excess of residential cleanup standards (1 and 12 ppm, respectively) would be excavated and placed in a temporary staging pile on site. In the planned industrial area, soil contaminated with PCBs and cadmium in excess of industrial cleanup standards (10 and 450 ppm, respectively) will also be excavated and placed in the temporary staging pile. Any excavated soil that exceeded 50 ppm PCB or concentrations of PCB or cadmium that would qualify it as a non-RCRA hazardous waste or California designated waste would be segregated and disposed off site in either a TSCA permitted facility or in a Class I landfill. The excavated areas would be backfilled with clean fill. Erosion and runoff controls will be used at the staging pile to prevent further distribution of contaminants. Contaminated soil will be disposed in permitted off-site Class I or II landfills, depending on the concentration of PCBs and cadmium found and the classification of the waste. Land use controls will be placed on the planned industrial area to prohibit future residential land use.

Key components of the excavation and off-site disposal alternative are as follows:

- Site preparation activities, including utility clearance
- Excavating contaminated soil from the planned residential and industrial areas to a temporary on-site staging pile within the area of contamination
- Sampling during implementation that will be used to determine whether any portions of the excavated soil contains concentrations of PCBs or cadmium that would define the soil as a California hazardous waste (due to cadmium or PCBs) under 22 CCR 66261.24. Sample analysis would also determine whether PCBs in the soil exceeded 50 ppm. If

any of these conditions exist, that portion of excavated soil will be staged separately from the less contaminated soil and subsequently disposed off site in a Class I landfill or in a permitted PCB disposal facility. The remaining soil would be placed in a Class II or III landfill, as determined by sampling and analysis at the time of excavation.

- The Navy has included Environmental Restrictions addressing IR02 land use controls pursuant to California Civil Code Section 1471 in the deed transferring title to FISC Alameda to the City of Alameda on July 20, 2000. The Environmental Restrictions require that IR02 not be used for residential purposes and construction activities shall not begin until the Navy and DTSC have determined that the soils having PCB and cadmium concentrations have been properly remediated and the Navy has recorded a release terminating the restrictions.
- Covenants to limit activities involving human contact with contaminated soils may be added to covenants already negotiated between state and municipal stakeholders. The covenants would incorporate environmental restrictions in the deed, as described above. Such restrictions would run with the land and would be for the benefit of, and enforceable by, the state. In addition, the covenants would be binding on future owners and occupants of the property.
- Backfilling excavated areas of the site with clean soil from an off-site source
- No long-term O&M

The following are common elements and distinguishing features of the excavation, off-site disposal and land use control alternative:

- The substantive requirements in 40 CFR 761.61 are chemical- and action-specific ARARs that are relevant and appropriate because these requirements address problems or situations that are sufficiently similar to the circumstances at IR02 and the requirement is well-suited to this alternative. Specifically, relevance and appropriateness is determined by comparing the site circumstances to factors found in 40 CFR 300.400(g)(2)(iv), (vi) and (vii). Comparing these factors to the remedial action, the Navy found direct correspondence between (1) the regulated action and the remedial action; (2) the type of place regulated and IR02; and (3) the type and size of the regulated facility and the Alameda Facility/Alameda Annex. Most of the requirements are based on the concentration of PCBs measured in contaminated soil. Measurement of PCB and cadmium concentrations in excavated soil during implementation of Alternative 4 will be conducted to determine how to comply with these ARARs. Three options for cleanup and disposal of PCB remediation waste are presented in 40 CFR 761.61: a “self-implementing option, a “performance-based disposal” option, and a “risk-based disposal approval” option. Each of these options may be relevant and appropriate for this alternative, however only the “self-implementing” option contains quantitative cleanup levels for PCB remediation waste. The substantive ARAR in the self-implementing option in 40 CFR 761.61(a)(4)(i)(A) for the residential, or “high occupancy” area is 1 ppm, without further restrictions placed on the site. The substantive ARAR for the industrial, or “low occupancy”, area is 25 ppm, without further restrictions (40 CFR

761.61(a)(4)(i)(B)). The third option, the risk-based disposal approval (40 CFR 761.61(c)) allows for the Navy to use a risk-based approach (rather than the self-implementing or performance-based options) for selecting cleanup levels. As described previously in Section 2.8, the Navy has chosen to use this third option for the determination of the residential and industrial cleanup standards for IR02.

- Under 40 CFR 761.61(a)(5)(i)(B)(2)(ii), soil contaminated with PCBs < 50 ppm may be disposed of in a permitted state municipal landfill or a nonhazardous, nonmunicipal landfill (referred to as a Class III landfill). However, under CCR 66261.24 and 27 CCR 20210, the soil may be considered a “designated waste” because of its toxicity characteristics, therefore requiring disposal in a more conservative Class II landfill. The designated waste determination will be made by comparing PCB concentrations in contaminated soil to the STLC using the California Waste Extraction Test or TTLC standards for PCBs in CCR 66261.24. The concentrations for STLC and TTLC are 5 and 50 ppm, respectively. Again, sampling and analysis during implementation of Alternative 4 will be conducted to make this determination. If excavated contaminated soil is not a California designated waste, the soil will be disposed of in a permitted Class III landfill.
- Cadmium concentrations in the soil excavated from IR02 might be high enough to cause the soil to be considered a non-RCRA hazardous waste, independent of PCB concentrations. This would occur if cadmium concentrations were to exceed the Maximum Concentration for the Toxicity Characteristic specified in California Code of Regulations (CCR) Title 22 Section 66261.24(a)(1)(B). This ARAR uses EPA’s Test Method 1311, Toxicity Characteristic Leaching Procedure (TCLP) to determine if the regulatory level of 1.0 mg/l is exceeded and the soil is therefore a characteristic hazardous waste. Further, the cadmium should be compared to levels in 22 CCR 66261.24(a)(2)(A) that define non-RCRA hazardous wastes. Specifically, the soil would be subjected to the waste extraction test (WET) and the result compared to the soluble threshold limit concentration (STLC) in 22 CCR 66261.24(a)(2)(A) which is 1.0 mg/l. If the result is higher than the STLC, the soil is considered a non-RCRA hazardous waste. Non-RCRA hazardous wastes must be disposed in Class I landfills. To determine whether TCLP analysis is actually needed during sampling and segregation, a general rule of thumb can be used. Specifically, the total waste concentrations (expressed in milligram per kilograms or parts per million) are compared to the TCLP regulatory level (expressed in milligrams per liter) by dividing the total waste concentration by 20, which is the dilution factor used in the TCLP test (EPA 1993). If the result is below the TCLP standard, it is assumed that the waste is not considered to be a characteristic hazardous waste based on the total waste concentration alone. For cadmium, this means a total waste concentration of 20 mg/kg or less. If the result is above the TCLP concentration, the waste is not automatically assumed to be characteristic hazardous waste. However, EPA guidance suggests that the determination must be made using more than just the total waste concentration data. A similar comparison is provided in 22 CCR 66261.24(a)(2)(A) using the Total Threshold Limit Concentration (TTLC). If the total waste concentration is less than the specified regulatory value of 100 mg/kg, the soil is not considered a non-RCRA hazardous waste. The highest cadmium concentration measured at IR02 was 81 mg/kg. In summary, if analysis of the soil detects cadmium greater than 100 mg/kg, the soil will be assumed to be a non-RCRA hazardous waste and will be disposed off site in a Class I landfill. If the cadmium in the soil falls between 20 mg/kg and 100 mg/kg, a TCLP test may be warranted and if the result is greater than 1

mg/l, the soil will be considered a characteristic hazardous waste and will be disposed in a Class I landfill. If cadmium is the only contaminant and is measured below 20 ppm, the soil can be disposed in a Class II or III landfill.

- The Navy and DTSC have identified state statutes as ARARs for implementing land use controls and entering into a land use covenant and agreements that include substantive provisions of California Civil Code Section 1471 and California HSC Sections 25202.5 and 25222.1.
- Pursuant to Assembly Bill 871, which became effective on January 1, 1999, DTSC is required to maintain a list of all land use restrictions recorded pursuant to HSC Sections 25200, 25200.10, 25202.5, 25222.1, 25229, 25230, 25355.5, and 25398.7. At a minimum, this list must provide the street address, or if a street address is not available, an equivalent description of location for a rural location or the latitude and longitude of each property. DTSC is also required to update the list as new land use restrictions are recorded, and make the list available to the public, upon request, and place the list on the DTSC Internet website.
- The substantive provision of Civil Code Section 1471 is the following general narrative standard: "...to do or refrain from doing some act on his or her own land...where...(c) Each such act relates to the use of land and each such act is reasonably necessary to protect present or future human health or safety or the environment as a result of the presence on the land of hazardous materials, as defined in Section 2560 of the Health and Safety Code." This narrative standard would be implemented through incorporation of restrictive environmental covenants in the deed at the time of transfer. These covenants would be recorded with the environmental restriction covenant and agreement and run with the land.
- The substantive provision of HSC Section 25202.5 is the general narrative standard to restrict "present and future uses of all or part of the land on which the ...facility...is located..." These substantive provisions will be implemented by incorporation of restrictive environmental covenants in the environmental restriction covenant and agreement at the time of transfer, for purposes of protecting present and future public health and safety.
- Excavation and disposal activities would be conducted, to the maximum extent practicable, consistent with the San Francisco Bay Plan (revised June 1998), because they may affect resources of the coastal zone at adjacent facilities. In addition, the Navy has identified Section 5650 of the California Fish and Game Code as relevant and appropriate for Alternative 3. Section 5650 prohibits deposition of materials deleterious to fish into waters of the state. Excavation would be conducted in a manner that would prevent the deposition of contaminated material into the Inner Harbor that could be deleterious to birds or fish that live there.
- Several BAAQMD regulations are potential ARARs for excavation activities. First, substantive requirements in BAAQMD Regulations 6 and 8-40 would be ARARs for excavation. Specifically, Regulations 6-301, 6-302, and 6-305, which specify standards for particulates and visible emissions, are applicable to limit dust and particulates emissions during excavation and removal of soils. The Navy would take appropriate actions, such as water spraying, to control dust emissions during excavation and

transport. The requirements for staging piles at 40 CFR 264.554 are relevant and appropriate requirements for this alternative. Specifically, 264.554 (a), (d), (g), (h) and (j) contain substantive requirements for the staging pile at IR02. Alternative 4 is reliable in the long term, because residual risks would be permanently eliminated by removing the contaminated soil on the residential portion.

- Residual risk would remain on the planned industrial area of the site; however, human health would be protected as long as the prohibition on residential land use is enforced.

Estimated time for design/construction:	About 6 months
Estimated time to meet RAOs:	Immediately upon completion
Estimated capital cost:	\$ 995,100
Estimated 5-year review cost:	\$ 5,000
Discount rate:	7 percent
Estimated total present worth cost:	\$ 995,900

Expected outcomes of the excavation and off-site disposal alternative:

- About 6 months would be required to mobilize and construct this alternative.
- After completion of this alternative, residential land use will be available on the planned residential portion of the IR02 site. Industrial land use only will be available on the planned industrial portion of the IR02 site.
- Minimal impacts to the community or the environment are associated with implementation of this alternative. Excavation, traffic and construction activity may create some short-term dust and noise impacts on the surrounding community.
- Risks to workers during implementation can be minimized through engineering controls and proper health and safety protocols.

Alternative 5: Excavation, On-site Soil Washing and Land Use Controls. This alternative involves excavating PCB- and cadmium-contaminated soil from both the planned residential (western) area and from the planned industrial (eastern) area of IR02. In the planned residential area, soil contaminated with PCBs and cadmium in excess of residential cleanup standards (1 and 12 ppm, respectively) would be excavated and placed in a temporary staging pile on site. In the planned industrial area, soil contaminated with PCBs and cadmium in excess of industrial cleanup standards (10 and 450 ppm, respectively) would also be excavated and placed in a temporary staging pile. Any excavated soil that exceeded 50 ppm PCB or concentrations of PCB or cadmium that would qualify it as a California hazardous waste would be segregated and disposed off site in either a TSCA permitted facility or in a

Class I landfill. The remaining excavated soil would be treated on site using soil washing technology to treat the soil below the 1-ppm residential cleanup level. Soil washing involves a physical and chemical separation technology during which excavated soil is pretreated to remove large objects and soil clods and then washed with fluids to remove contaminants. The soil is recovered in two fractions: a relatively high-volume, coarse sand and gravel that is clean and suitable for use as on-site fill and a smaller-volume, fine silt and clay fraction that carries the bulk of the chemical contaminants. This second fraction would normally be less than 5 to 10 percent of the original volume of soil treated. The spent wash and rinse water is treated to remove contaminants before they are recycled to the treatment unit. Contaminated fines and sludges resulting from the process will be analyzed and disposed of in an appropriately permitted off-site landfill. Treated soil will be replaced on site as backfill in previously excavated areas. Land use controls will be placed on the planned industrial area to prohibit future residential land use.

Although not considered innovative, the effectiveness of this technology to treat IR02 soil has not been tested. There is some uncertainty that this technique can achieve the cleanup levels for PCBs and cadmium. A treatability study will be conducted to determine whether the levels can be met.

Key components of the excavation and on-site soil washing alternative are as follows:

- Site preparation activities including utility clearance and removal of structures and concrete
- Excavating and removing contaminated soil from planned residential and industrial areas to a temporary on-site staging pile
- Sampling during implementation that will be used to determine whether any portions of the excavated soil contains concentrations of PCBs or cadmium that would define the soil as a California hazardous waste (due to cadmium or PCBs) under 22 CCR 66261.24. Sample analysis would also determine whether PCBs in the soil exceeded 50 ppm. If any of these conditions exist, that portion of excavated soil will be staged separately from the less contaminated soil and subsequently disposed off site in a Class I landfill or in a permitted PCB disposal facility.
- The Navy has included Environmental Restrictions addressing IR02 land use controls pursuant to California Civil Code Section 1471 in the deed transferring title to FISC Alameda to the City of Alameda on July 20, 2000. The Environmental Restrictions require that IR02 not be used for residential purposes and construction activities shall not begin until the Navy and DTSC have determined that the soils having PCB and cadmium

concentrations have been properly remediated and the Navy has recorded a release terminating the restrictions.

- Covenants to limit activities involving human contact with contaminated soils may be added to covenants already negotiated between state and municipal stakeholders. The covenants would incorporate environmental restrictions in the deed, as described above. Such restrictions would run with the land and would be for the benefit of, and enforceable by, the state. In addition, the covenants would be binding on future owners and occupants of the property.
- Soil-washing at IR02 using a mobile unit
- Backfilling excavated areas of the site with treated soil
- No long-term O&M

The following are common elements and distinguishing features of Alternative 5:

- The substantive requirements in 40 CFR 761.61 are chemical- and action-specific ARARs that are relevant and appropriate because these requirements address problems or situations that are sufficiently similar to the circumstances at IR02 and the requirement is well-suited to this alternative. Specifically, relevance and appropriateness is determined by comparing the site circumstances to factors found in 40 CFR 300.400(g)(2)(iv), (vi) and (vii). Comparing these factors to the remedial action, the Navy found direct correspondence between (1) the regulated action and the remedial action; (2) the type of place regulated and IR02; and (3) the type and size of the regulated facility and the Alameda Facility/Alameda Annex. Most of the requirements are based on the concentration of PCBs measured in contaminated soil. Measurement of PCB concentrations in excavated soil during implementation of Alternative 5 will be conducted to determine how to comply with these ARARs. Three options for cleanup and disposal of PCB remediation waste are presented in 40 CFR 761.61: a “self-implementing option, a “performance-based disposal” option, and a “risk-based disposal approval” option. Each of these options may be relevant and appropriate for this alternative, however only the “self-implementing” option contains quantitative cleanup levels for PCB remediation waste. The substantive ARAR in 40 CFR 761.61(a)(4)(i)(A) for the residential, or “high occupancy” area is 1 ppm, without further restrictions placed on the site. The substantive ARAR for the industrial, or “low occupancy”, area is 25 ppm, without further restrictions. The third option, the risk-based disposal approval (40 CFR 761.61(c)) allows for the Navy to use a risk-based approach (rather than the self-implementing or performance-based options) for selecting cleanup levels. As described previously in Section 2.8, the Navy has chosen to use this third option for the determination of the residential and industrial cleanup standards for IR02. The soil washing treatment standards (for soil that will be replaced on site) will be the same as the residential cleanups.
- Section 761.61(a)(5)(i)(A) allows for a soil-washing option for the treatment of PCB remediation waste. Specifically, treatment of PCB remediation waste using soil washing

must comply with Section 761.61(a)(5)(i)(A)(1) through (6), which includes the following requirements:

- A nonchlorinated solvent must be used.
 - The process occurs at the ambient temperature.
 - The process is not exothermic.
 - The process uses no external heat.
 - The process has secondary containment to prevent any solvent from being released to underlying or surrounding soils or surface waters.
 - Solvent disposal, recovery, or reuse is in accordance with relevant provisions of approvals issued by the EPA Administrator. (The Navy is exempted by CERLCA Section 121(e) from acquiring these approvals. Nevertheless, approval is implied by EPA's signature of this RAP/ROD.)
- Under 40 CFR 761.61(a)(5)(i)(B)(2)(ii), PCB remediation waste, such as the sludge from soil washing, that contains < 50 ppm may be disposed of in a permitted state municipal landfill or a nonhazardous, nonmunicipal landfill (referred to as a Class III landfill). However, under 22 CCR 66261.24 and 27 CCR 20210, the soil may be considered a non-RCRA hazardous waste or a "designated waste," requiring disposal in a more conservative Class I or II landfill. The sludge will be characterized before it leaves the site, and if it is determined to be a non-RCRA hazardous waste or a California designated waste, the sludge will be disposed of in the appropriately permitted landfill.
 - Cadmium contamination in the soil excavated from IR02 might be high enough to cause the soil to be considered a non-RCRA hazardous waste, independent of PCB concentrations. This would occur if cadmium concentrations were to exceed the Maximum Concentration for the Toxicity Characteristic specified in California Code of Regulations (CCR) Title 22 Section 66261.24(a)(1)(B). This ARAR uses EPA's Test Method 1311, Toxicity Characteristic Leaching Procedure (TCLP) to determine if the regulatory level of 1.0 mg/l is exceeded and the soil is therefore a characteristic hazardous waste. Further, the cadmium should be compared to levels in 22 CCR 66261.24(a)(2)(A) that define non-RCRA hazardous wastes. Specifically, the soil would be subjected to the waste extraction test (WET) and the result compared to the soluble threshold limit concentration (STLC) in 22 CCR 66261.24(a)(2)(A) which is 1.0 mg/l. If the result is higher than the STLC, the soil is considered a non-RCRA hazardous waste. Non-RCRA hazardous wastes must be disposed in Class I landfills. To determine whether TCLP analysis is actually needed during sampling and segregation, a general rule of thumb can be used. Specifically, the total waste concentrations (expressed in milligram per kilograms or parts per million) are compared to the TCLP regulatory level (expressed in milligrams per liter) by dividing the total waste concentration by 20, which is the dilution factor used in the TCLP test (EPA 1993). If the result is below the TCLP standard, it is assumed that the waste is not considered to be a characteristic hazardous waste based on the total waste concentration alone. For cadmium, this means a total waste concentration of 20 mg/kg or less. If the result is above the TCLP concentration, the waste is not automatically assumed to be characteristic hazardous waste. However,

EPA guidance suggests that the determination must be made using more than just the total waste concentration data. A similar comparison is provided in 22 CCR 66261.24(a)(2)(A) using the Total Threshold Limit Concentration (TTLTC). If the total waste concentration is less than the specified regulatory value of 100 mg/kg, the soil is not considered a non-RCRA hazardous waste. The highest cadmium concentration measured at IR02 was 81 mg/kg. In summary, if analysis of the soil detects cadmium greater than 100 mg/kg, the soil will be assumed to be a non-RCRA hazardous waste and will be disposed off site in a Class I landfill. If the cadmium in the soil falls between 20 mg/kg and 100 mg/kg, a TCLP test may be warranted and if the result is greater than 1 mg/l, the soil will be considered a characteristic hazardous waste and will be disposed in a Class I landfill. Soil that is not non-RCRA hazardous waste or a California designated waste will be treated in the soil washing process.

- The Navy and DTSC have identified state statutes as ARARs for implementing land use controls and entering into a land use covenant and agreements that include substantive provisions of California Civil Code Section 1471 and California HSC Sections 25202.5 and 25222.1.
- Pursuant to Assembly Bill 871, which became effective on January 1, 1999, DTSC is required to maintain a list of all land use restrictions recorded pursuant to HSC Sections 25200, 25200.10, 25202.5, 25222.1, 25229, 25230, 25355.5, and 25398.7. At a minimum, this list must provide the street address, or if a street address is not available, an equivalent description of location for a rural location or the latitude and longitude of each property. DTSC is also required to update the list as new land use restrictions are recorded, and make the list available to the public, upon request, and place the list on the DTSC Internet website.
- The substantive provision of Civil Code Section 1471 is the following general narrative standard: "...to do or refrain from doing some act on his or her own land...where...(c) Each such act relates to the use of land and each such act is reasonably necessary to protect present or future human health or safety or the environment as a result of the presence on the land of hazardous materials, as defined in Section 2560 of the Health and Safety Code." This narrative standard would be implemented through incorporation of restrictive environmental covenants in the deed at the time of transfer. These covenants would be recorded with the environmental restriction covenant and agreement and run with the land.
- The substantive provision of HSC Section 25202.5 is the general narrative standard to restrict "present and future uses of all or part of the land on which the ...facility...is located..." These substantive provisions will be implemented by incorporation of restrictive environmental covenants in the environmental restriction covenant and agreement at the time of transfer, for purposes of protecting present and future public health and safety.
- Excavation, treatment and replacement of soil activities would be conducted, to the maximum extent practicable, consistent with the San Francisco Bay Plan (revised June 1998), because they may affect resources of the coastal zone at adjacent facilities. In addition, the Navy has identified Section 5650 of the California Fish and Game Code as relevant and appropriate for Alternative 3. Section 5650 prohibits deposition of materials deleterious to fish into waters of the state. Excavation would be conducted in a

manner that would prevent the deposition of contaminated material into the Inner Harbor that could be deleterious to birds or fish that live there.

- Several BAAQMD regulations are potential ARARs for excavation activities. First, substantive requirements in BAAQMD Regulations 6 and 8-40 would be ARARs for excavation. Specifically, Regulations 6-301, 6-302, and 6-305, which specify standards for particulates and visible emissions, are applicable to limit dust and particulates emissions during excavation and removal of soils. The Navy would take appropriate actions, such as water spraying, to control dust emissions during excavation and transport.
- The requirements for staging piles at 40 CFR 264.554 are relevant and appropriate requirements for this alternative. Specifically, 264.554 (a), (d), (g), (h) and (j) contain substantive requirements for the staging pile at IR02.
- Alternative 5 is reliable in the long term, because residual risks would be permanently eliminated by removing the source from the planned residential portion and treating the material under this alternative.
- Residual risk would remain on the planned industrial area of the site; however, human health would be protected as long as the prohibition on residential land use is enforced.

Estimated time for implementation:	About 6 months
Estimated time to meet RAOs:	6 months
Estimated capital cost:	\$ 1,965,000
Discount rate:	7 percent
Estimated five-year review cost:	\$ 5,000
Estimated total present worth cost:	\$ 1,965,800

Expected outcomes of the excavation and on-site soil washing alternative are as follows:

- About 6 months would be required to mobilize and construct this alternative.
- After completion of this alternative, residential land use will be available on the planned residential portion and industrial land use will be available on the planned industrial portion of the site.
- Minimal impacts to the community and the environment are associated with implementation of this alternative. Excavation, traffic and construction activity may create some dust and noise impacts on the surrounding community.
- Risks to workers during implementation can be minimized through engineering controls and proper health and safety protocols.

Alternative 6: Excavation, On-site Emulsion Recycling, and Land Use Controls. This alternative involves excavating PCB- and cadmium-contaminated soils above cleanup levels specified in 40 CFR

761.61(a)(4)(i)(A) for the residential (1 ppm PCBs and 12 ppm cadmium) and industrial (10 ppm PCBs and 450 ppm cadmium) areas. Any excavated soil that exceeded 50 ppm PCB or concentrations of PCB or cadmium that would qualify it as a non-RCRA hazardous waste would be segregated and disposed off site in either a TSCA permitted facility or in a Class I landfill. The recycling process involves mixing contaminated soil with aggregate and proprietary reagents, such as water-based cold asphalt emulsions, reagents, and setting agents, that coalesce contaminated soil with organic compounds to create highly stable, nonleaching matrices. The final treated soil product would be used as backfill on the eastern portion of IR02 and will then be paved with a 6-inch-thick asphalt layer. Paving will eliminate potential contact with the treated soil product. The area in the planned residential (western) portion of the site will be backfilled with clean fill from off site. Land use controls will be placed on the planned industrial portion to ensure that residential land use is prohibited.

Key components of the excavation and on-site emulsion recycling, and land use controls alternative are as follows:

- Site preparation activities, including utility clearance and removal of structures and concrete
- Excavating and removing contaminated soil from the planned residential and industrial areas to a temporary on-site staging pile
- Sampling during implementation that will be used to determine whether any portions of the excavated soil contains concentrations of PCBs or cadmium that would define the soil as a California hazardous waste (due to cadmium or PCBs) under 22 CCR 66261.24. Sample analysis would also determine whether PCBs in the soil exceeded 50 ppm. If any of these conditions exist, that portion of excavated soil will be staged separately from the less contaminated soil and subsequently disposed off site in a Class I landfill or in a permitted PCB disposal facility.
- On-site emulsion recycling using a mobile unit and placement of the treated soil product under a asphalt cap on the planned industrial area of IR02
- The Navy has included Environmental Restrictions addressing IR02 land use controls pursuant to California Civil Code Section 1471 in the deed transferring title to FISC Alameda to the City of Alameda on July 20, 2000. The Environmental Restrictions require that IR02 not be used for residential purposes and construction activities shall not begin until the Navy and DTSC have determined that the soils having PCB and cadmium concentrations have been properly remediated and the Navy has recorded a release terminating the restrictions.
- Covenants to limit activities involving human contact with contaminated soils may be added to covenants already negotiated between state and municipal stakeholders. The

covenants would incorporate environmental restrictions in the deed, as described above. Such restrictions would run with the land and would be for the benefit of, and enforceable by, the state. In addition, the covenants would be binding on future owners and occupants of the property.

- Backfilling excavated areas of the western portion of the site with treated soil
- Limited O&M to ensure the integrity of the cap and the soil emulsion matrix

The following are common elements and distinguishing features of Alternative 6:

- The substantive requirements in 40 CFR 761.61 are chemical- and action-specific ARARs that are relevant and appropriate because these requirements address problems or situations that are sufficiently similar to the circumstances at IR02 and the requirement is well-suited to this alternative. Specifically, relevance and appropriateness is determined by comparing the site circumstances to factors found in 40 CFR 300.400(g)(2)(iv), (vi) and (vii). Comparing these factors to the remedial action, the Navy found direct correspondence between (1) the regulated action and the remedial action; (2) the type of place regulated and IR02 and (3) the type and size of the regulated facility and the Alameda Facility/Alameda Annex. Most of the requirements are based on the concentration of PCBs in contaminated soil. Measurement of PCB and cadmium concentrations in excavated soil during implementation of Alternative 6 will be conducted to determine how to comply with these ARARs. Three options for cleanup and disposal of PCB remediation waste are presented in 40 CFR 761.61: a “self-implementing option, a “performance-based disposal” option, and a “risk-based disposal approval” option. Each of these options may be relevant and appropriate for this alternative, however only the “self-implementing” option contains quantitative cleanup levels for PCB remediation waste. Section 761.61(a)(5)(i)(B)(2)(iii) requires that generated PCB remediation waste ≥ 50 ppm must be disposed of in a landfill permitted under Section 3004 of RCRA (referred to as a Title C landfill) or a permitted PCB disposal facility, such as an incinerator. In California, a state that is authorized to implement the RCRA Program, this is referred to as a Class I landfill. The substantive ARAR for the residential, or “high occupancy”, area is 1 ppm, without further restrictions placed on the site. PCB concentrations up to 10 ppm may be left on a planned residential land use site if the contamination is contained by a single-layer cap of concrete or asphalt (6 inches) or soil (10 inches). The substantive ARAR for the industrial, or “low occupancy”, area is 25 ppm, without further restrictions. PCB concentrations between 25 and 50 ppm can be left in a low occupancy area if the area is fenced and marked. Concentrations up to 100 ppm can be left in a low occupancy area if the contamination is contained by a single-layer cap. The soil emulsion alternative will comply with these ARARs by excavating soil in excess of 1 ppm PCB and 12 ppm, cadmium and treating it in the soil emulsion process. The third option, the risk-based disposal approval (40 CFR 761.61(c)) allows for the Navy to use a risk-based approach (rather than the self-implementing or performance-based options) for selecting cleanup levels. As described previously in Section 2.8, the Navy has chosen to use this third option for the determination of the residential and industrial cleanup standards for IR02. The treated soil product may contain concentrations in excess of the cleanup standards

but will not contain hazardous waste because it will have been segregated during excavation and disposed off site. Contaminants bound in the treated soil product under the asphalt cap and placed on the planned industrial area will meet the PCB cleanup standards for low occupancy areas.

- Accurate waste classification is necessary to determine the substantive requirements that will apply to the asphalt cap over the treated soil product in the planned industrial area. As described above, any soil determined to be a non-RCRA hazardous waste will be disposed off site in a Class I landfill. Under 40 CFR 761.61(a)(5)(i)(B)(2)(ii), soil contaminated with PCBs < 50 ppm may be disposed of in a permitted state municipal landfill or a nonhazardous, nonmunicipal landfill (referred to as a Class III landfill). However, under California Code of Regulations (CCR) Title 27 Section 20220, the soil may be considered a “designated waste,” requiring disposal in a more conservative Class II landfill. A “designated waste” is defined as a waste that “contains, pollutants that, under ambient environmental conditions at the waste management unit, could be released at concentrations in excess of applicable water quality objectives or could cause degradation of waters of the state.” This determination is made on a site-specific basis using the California RWQCB guidance “Designated Level Methodology for Waste Classification and Cleanup Level Determination” (Cal RWQCB 1989). The guidance provides a calculation to determine a site-specific Designated Level to which the results of the WET can be compared. The attenuation factor for a contaminant is the main variable in the calculation. When the attenuation factor is high, the waste is less likely to leach and cause water quality problems. In general, the attenuation factor increases with these site-specific factors: increased clay content, increased organic matter content and lower pollutant mass loading. The RI has shown that these conditions exist at IR02 and groundwater studies confirm that PCBs and cadmium are not leaching into groundwater, so it is unlikely that the soil would be defined as a California designated waste. Nevertheless, the results of the WET will be evaluated during excavation and sampling to determine whether California designated wastes are present and whether they require off-site disposal or can be safely placed on site as part of the treated soil product.
- The Navy and DTSC have identified state statutes as ARARs for implementing land use controls and entering into a land use covenant and agreements that include substantive provisions of California Civil Code Section 1471 and California HSC Sections 25202.5 and 25222.1.
- Pursuant to Assembly Bill 871, which became effective on January 1, 1999, DTSC is required to maintain a list of all land use restrictions recorded pursuant to HSC Sections 25200, 25200.10, 25202.5, 25222.1, 25229, 25230, 25355.5, and 25398.7. At a minimum, this list must provide the street address, or if a street address is not available, an equivalent description of location for a rural location or the latitude and longitude of each property. DTSC is also required to update the list as new land use restrictions are recorded, and make the list available to the public, upon request, and place the list on the DTSC Internet website.
- The substantive provision of Civil Code Section 1471 is the following general narrative standard: “...to do or refrain from doing some act on his or her own land...where...(c) Each such act relates to the use of land and each such act is reasonably necessary to protect present or future human health or safety or the environment as a result of the presence on the land of hazardous materials, as defined in Section 2560 of the Health and

Safety Code.” This narrative standard would be implemented through incorporation of restrictive environmental covenants in the deed at the time of transfer. These covenants would be recorded with the environmental restriction covenant and agreement and run with the land.

- The substantive provision of HSC Section 25202.5 is the general narrative standard to restrict “present and future uses of all or part of the land on which the ...facility...is located...” These substantive provisions will be implemented by incorporation of restrictive environmental covenants in the environmental restriction covenant and agreement at the time of transfer, for purposes of protecting present and future public health and safety.
- Excavation, treatment and treated soil product replacement activities would be conducted, to the maximum extent practicable, consistent with the San Francisco Bay Plan (revised June 1998), because they may affect resources of the coastal zone at adjacent facilities. In addition, the Navy has identified Section 5650 of the California Fish and Game Code as relevant and appropriate for Alternative 3. Section 5650 prohibits deposition of materials deleterious to fish into waters of the state. Excavation would be conducted in a manner that would prevent the deposition of contaminated material into the Inner Harbor that could be deleterious to birds or fish that live there.
- Several BAAQMD regulations are potential ARARs for excavation activities. First, substantive requirements in BAAQMD Regulations 6 and 8-40 would be ARARs for excavation. Specifically, Regulations 6-301, 6-302, and 6-305, which specify standards for particulates and visible emissions, are applicable to limit dust and particulates emissions during excavation and removal of soils. The Navy would take appropriate actions, such as water spraying, to control dust emissions during excavation and transport. The requirements for staging piles at 40 CFR 264.554 are relevant and appropriate requirements for this alternative. Specifically, 264.554 (a), (d), (g), (h) and (j) contain substantive requirements for the staging pile at IR02.
- Alternative 6 is reliable in the long term as long as the integrity of the asphalt cap and emulsified soil product is maintained and as long as land use controls remain enforceable.

Estimated time for implementation:	About 6 months
Estimated time to meet RAOs:	6 months
Estimated capital cost:	\$ 1,049,212
Discount rate:	7 percent
Estimated cost of five-year review	\$ 5,000
Estimated total present worth cost:	\$ 1,076,900

Expected outcomes of the excavation, on-site soil emulsion recycling and land use controls alternative:

- About 6 months would be required to mobilize and construct this alternative.
- After completion of this alternative, residential land use will be available on the entire site, except for the area covered by the asphalt cap.
- Minimal impacts to the community and the environment are associated with implementation of this alternative. Excavation, traffic and construction activity may create some dust and noise impacts on the surrounding community.
- Risks to workers during implementation can be minimized through engineering controls and proper health and safety protocols.

2.10 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

The following sections summarize the comparative analysis of alternatives for contaminated soil against the EPA's nine evaluation criteria. The comparative analysis provides the information needed to decide which alternative or alternatives best satisfies the goals and expectations of the NCP. Table 2 contains a summary of this comparative analysis. The discussion of each evaluation criterion generally proceeds from the alternative that best satisfies the criterion to the one that least satisfies the criterion. The nine criteria are summarized as follows:

- **Overall protection of human health and the environment.** This criterion address whether a remedy provides adequate protection of human health and the environment and describes how risks posed by each pathway are eliminated, reduced, or controlled through treatment, engineering controls, or land use controls.
- **Compliance with applicable or relevant and appropriate requirements.** This evaluation criterion is used to determine whether each remedy will meet all ARARs or provide grounds for invoking a waiver of the requirements. This criterion includes chemical-, location-, and action-specific ARARs.
- **Long-term effectiveness and permanence.** This criterion evaluates the long-term effectiveness of alternatives in protecting human health and the environment after response objectives have been met, in terms of the magnitude of residual risk and the adequacy and reliability of controls.
- **Reduction of toxicity, mobility, or volume through treatment.** This criterion evaluates the treatment technologies that an alternative may employ based on their degree of expected reduction in toxicity, mobility, or volume of hazardous material. This criterion also evaluates the irreversibility of the treatment process and the type and quantity of residuals that remain after treatment.

- **Short-term effectiveness.** This criterion addresses the effectiveness of alternatives in protecting human health and the environment during remedial construction and implementation until the remedial action is complete.
- **Implementability.** This criterion addresses the technical and administrative feasibility of alternatives and the availability of required goods and services. It assesses the ability to construct and operate the technology, the reliability of the technology, the ease of undertaking additional remedial actions, and the ability to obtain approvals from other agencies.
- **Cost.** This criterion addresses the capital and O&M costs of each alternative and estimates of the total present-worth cost of each alternative.
- **State acceptance.** This criterion addresses whether the state concurs with, opposes, or has no comment on the Navy's preferred alternative.
- **Community acceptance.** This criterion indicates whether community concerns are addressed by each cleanup method and whether the community has indicated a preferred cleanup method. Community acceptance of the Navy's proposed plan was evaluated based on comments received during the public comment period. Community concerns are documented in the responsiveness summary presented in Appendix C of this RAP/ROD.

Overall Protection of Human Health and the Environment

All alternatives, except for Alternative 1, no action, would protect human health and the environment under current and future land uses. Alternatives 3 and 6 would contain the contamination on site under engineered caps, although Alternative 6 would further contain the contaminants by binding them in a nonleachable matrix under the cap. Alternative 4 would protect human health by removing contaminants from the site completely, while Alternative 5 would treat contaminants to meet cleanup levels and return the treated soil to the site. All alternatives, except for Alternative 1, would use land use controls to prohibit residential land use on the planned industrial portion of the site.

Compliance with ARARs

All alternatives, except for no action, would comply with federal and state ARARs. The primary ARARs for Site IR02 are in 40 CFR Part 761. Specifically, 40 CFR 761.61 provides substantive requirements for storage and disposal of PCB remediation waste. Section 761.61(a) is also the source of cleanup standards for PCB remediation waste. The requirements of 22 CCR 66261.24 involve identification, management and disposal of non-RCRA hazardous wastes.

Alternatives 3 through 6 involve excavation or consolidation and will comply with ARARs by meeting PCB concentrations required by 761.61(a)(4) – “Cleanup Levels.” Alternatives 3 and 6 will also meet state and federal requirements for caps.

Long-term Effectiveness and Permanence

Long-term effectiveness is evaluated based on two factors: magnitude of residual risks and adequacy and reliability of controls. Alternatives 4 and 5 provide the highest level of long-term effectiveness, because all soil containing PCBs and cadmium exceeding cleanup levels would be excavated and either removed completely from the site (Alternative 4) or treated below cleanup levels and returned to the site (Alternative 5). Residual risk would remain only on the planned industrial portion of IR02 and that risk is mitigated by the imposition of land use controls in all alternatives (except Alternative 1) prohibiting residential land use on the eastern two-thirds of the site. Little continued maintenance would be needed to ensure reliability of the remedy except for administrative activities needed to ensure the land use controls remain in place and are effective. Alternatives 3 and 6 would leave contaminants on the site at relatively the same concentrations they were found. Both alternatives depend on the integrity of the caps and continued enforcement of land use controls to ensure protectiveness.

Reduction in Toxicity, Mobility, or Volume through Treatment

Only Alternatives 5 and 6 use treatment to reduce the toxicity, mobility, or volume of contaminants in contaminated soil. Alternative 5 uses soil washing to reduce the toxicity of contaminated soil, and Alternative 6 reduces the mobility of contaminants by binding them in a nonleachable solid matrix. None of the other alternatives involve treatment.

Short-term Effectiveness

Because no site construction would be required, Alternative 1 would provide the highest level of short-term protection to the community, workers, and the environment. Alameda Facility/Alameda Annex is completely closed and fenced, and the nearest community members are located off of the facility. Therefore, the potential for exposure from on-site construction is limited to remediation workers. Alternatives 3 through 6 provide less short-term effectiveness because of the excavation required. All

alternatives could pose an additional short-term risk to the public as a result of increased truck traffic and the potential for off-site releases associated with transporting excavated soil from IR02 off site for disposal.

All of the alternatives would take less than 1 year to complete construction and would meet the RAOs immediately thereafter.

Implementability

Alternative 1 would be easy to implement, because no action would be taken. Alternatives 3 through 6 would be more difficult to implement when compared with Alternative 1, because they involve construction activities. However, none of the alternatives are technically complex or involve difficult administrative tasks. No permits would be needed for Alternatives 3 through 6, although waste characterization and manifesting may be required for off site disposal of non-RCRA hazardous waste. Alternatives 5 and 6 may require bench- or pilot-scale testing making them more difficult to implement than Alternatives 3 and 4. Alternative 6 involves an innovative process for binding contaminants that has not been tested on the soil at IR02. In addition, Alternative 6 would require additional negotiations among the Navy, the DTSC and the City of Alameda to amend the existing covenants and the environmental restrictions in deed to include additional land use controls.

Cost

No known costs would be associated with Alternative 1. Alternative 5 is the most expensive alternative (\$1,965,500), but it is relatively close in cost to Alternatives 4 and 6 (\$995,100 and \$1,076,900, respectively), particularly when considering that these cost figures are only estimates, with a possible margin of error of between minus 30 and plus 50 percent. The cost to implement Alternative 3 (\$365,800) is least expensive.

State Acceptance

Based on this RAP/ROD, DTSC and RWQCB believe that Alternative 4 is the preferred remedy for IR02.

Community Acceptance

Community acceptance of this alternative is favorable. Specific comments from the public and the Navy's responses are included in the responsiveness summary (See Appendix C).

2.11 PRINCIPAL THREAT WASTES

Hazardous substances are present in contaminated soil throughout IR02. However, these substances are considered to be low-level wastes because of their low concentrations and toxicity. Therefore, this remedy will meet the NCP's expectation "to use engineering controls such as containment for waste that poses a relatively low long-term threat" (40 CFR 300.430(a)(1)(iii)(B)).

2.12 SELECTED REMEDY

The rationale for the selected remedy, a description of the selected remedy, estimated remedy costs, and the expected outcomes of the selected remedy are described in detail below for contaminated soil at Alameda Facility/Alameda Annex.

2.12.1 Summary of the Rationale for the Selected Remedy

Alternative 4 is the preferred alternative for several reasons. First, the alternative meets the threshold criteria for protectiveness and compliance with ARARs by removing PCB- and cadmium-contaminated soil completely from the site. No residual contamination will remain on the residential portion of the site in concentrations that create an unacceptable risk to human health or the environment. Land use controls prohibit residential use of the planned industrial portion of the site making IR02 available for its planned residential and industrial uses upon completion of the remedy. It also provides a high level of long- and

short-term effectiveness, because it is quickly implemented and does not require long-term operation and maintenance other than administrative actions to ensure that the land use controls are effective. Cost-effectiveness is also a primary factor for choosing Alternative 4, because it handles about the same volume of soil as Alternatives 3 through 6, but completely removes the contaminated soil at a lower unit cost than the other alternatives.

2.12.2 Description of the Selected Remedy

The selected remedy for remediating contaminated soil is a variant of Alternative 4 from the FS. This alternative involves removing contaminated soil from both the planned residential (western) area and from the planned industrial (eastern) area of IR02 and imposing land use controls. The alternative conforms to the planned reuse of the site as required by the Office of Solid Waste and Emergency Response Directive 9355.7-04 "Land Use in the CERCLA Remedy Selection Process," May 25, 1995. This section expands on some of the major remedy components. These components may change somewhat as a result of the remedial design and construction processes. Changes to the remedy described in the RAP/ROD will be documented using a technical memorandum in the administrative record, an explanation of significant differences (ESD), or an amendment to the RAP/ROD.

In the planned residential area, soil contaminated with PCBs and cadmium in excess of residential cleanup standards (1 and 12 ppm, respectively) would be excavated and placed in a staging pile on site. Evaluation of existing data for the western one-third of the site indicates PAHs are not present at concentrations that pose an unacceptable risk to future residents. In the planned industrial area, soil contaminated with PCBs and cadmium in excess of industrial cleanup standards (10 and 450 ppm, respectively) would be excavated and placed in a staging pile on site. Excavated areas would be backfilled with clean fill. Erosion and runoff controls will be used at the staging pile to prevent further distribution of contaminants. Contaminated soil will be disposed of in permitted off-site Class I, II or III landfills, depending on the concentration of PCBs and cadmium found and the classification of the waste.

The area and volume of soil to be excavated from the site has been estimated based on the future land use plan for IR02. The Catellus Project Master Plan devotes the western one-third of IR02 (approximately 2.5 acres) to residential use and the eastern two-thirds of the site (approximately 8.1 acres) to industrial use (Catellus 2000). The RI data indicated that 70 percent of the samples taken from the residential area

in the surface (0 to 1-foot bgs) interval exceeded the residential cleanup levels of 1 ppm PCB and 12 ppm cadmium. Likewise, 30 percent of the planned industrial area samples exceeded the industrial levels. Based on the RI data and to be conservative, it is assumed that 80 percent of the residential area exceeds residential levels and 20 percent does not. Similarly, it is assumed that 35 percent of the planned industrial area exceeds the industrial levels and 65 percent does not. Cost and volume estimates were derived using these assumptions. Actual volumes and cost will likely change during remedy implementation. Based on these assumptions, the estimated area of soil for excavation is about 5 acres. Confirmation samples will be collected after the soil is excavated.

2.12.3 Summary of the Estimated Remedy Costs

The detailed cost estimate for the selected remedy is presented in Table 3.

The information in this cost estimate summary is based on the best available information and engineering judgment regarding the anticipated scope of the remedial alternative. Cost elements are likely to change as a result of new information and data collected during implementation of the remedial alternative. Major changes would be documented as a memorandum in the administrative record file, an explanation of significant differences, or an amendment to the RAP/ROD. This order-of-magnitude engineering cost estimate is expected to be within plus 50 to minus 30 percent of the actual project cost.

2.12.4 Expected Outcomes of the Selected Remedy

Construction of the selected remedy will be complete in about 6 months, after which the RAOs for IR02 will be achieved. After completion of the remedy, the future land use plan for IR02 can be implemented. The plan includes residential development for the western one-third of the site. Available uses for groundwater are not altered by the selected remedy. As described in Section 2.6.1, the groundwater under IR02 has no beneficial use for domestic or municipal water supply because of high TDS concentrations and low potential well yield. Shallow groundwater at Alameda Facility/Alameda Annex has never been a source for municipal, domestic, industrial, or agricultural use, and no future use of groundwater is planned.

The purpose of this response action is to remove risks posed by direct contact with, or ingestion or inhalation of, PCBs and cadmium in the soil. The results of the baseline risk assessment indicate that existing conditions at the site pose an ELCR of:

- 3.3E-03 to current workers
- 1.0E-04 to future residents
- 1.0E-05 to future workers

In addition, the baseline risk assessment indicates that existing conditions at the site pose a noncarcinogenic HI in excess of 1. This remedy will address all soil contaminated with PCBs in excess of 1 ppm in the planned residential area and 10 ppm in the planned industrial area of IR02. It will also address soil contaminated with cadmium in excess of 12 ppm in the planned residential area and 450 ppm in the planned industrial area. A large portion of the cadmium-contaminated soil is co-located with the soil contaminated with PCBs. PCB cleanup levels are required by 40 CFR 761.61(a)(4)(i)(A) and (B). Because no federal or state ARARs exist for cadmium in soil, cadmium cleanup levels were determined through a site-specific risk analysis. Meeting these cleanup levels will result in residual risk levels that fall within the risk management range required by the NCP.

The selected remedial action for the planned residential portion will be the final action for all contaminants of concern on that property. The remedial action chosen for the planned industrial portion will be the final action for that property for all contaminants of concern other than polynuclear aromatic hydrocarbons (PAH). After implementation of this remedial action, PAHs in the planned industrial portion may be addressed in a future decision document. In accordance with the Federal Facility Site Remediation Agreement (FFSRA) between the Navy and the DTSC, the Navy is conducting additional evaluations of PAHs at IR02.

2.13 STATUTORY DETERMINATIONS

CERCLA Section 121 establishes several statutory requirements and preferences. They specify that, when complete, the selected remedial action for IR02 must be protective of human health and the environment and must comply with applicable or relevant and appropriate standards established under

federal and state environmental laws, unless a statutory waiver is justified. The selected remedy also must be cost-effective and use permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable. Finally, the statute includes a preference for remedies that employ treatment technologies that permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances as their principal element. The following sections discuss how the selected remedies meet statutory requirements.

2.13.1 Protection of Human Health and the Environment

The selected remedy (Alternative 4, excavation, off-site disposal and land use controls) is protective of human health and the environment, as required by Section 121 of CERCLA, because it removes PCB- and cadmium-contaminated soil in excess of promulgated cleanup levels (ARARs) and risk-based cleanup standards. Although residual risk remains at the planned industrial area, after implementation of land use controls, no residual risk remains at the site that would create an unacceptable risk to humans or the environment, based on anticipated industrial land use.

2.13.2 Compliance with Applicable or Relevant and Appropriate Requirements

This remedy will address all soil contaminated with PCBs in excess of 1 ppm at the planned residential area and 10 ppm at the planned industrial area of IR02. These cleanup levels achieve promulgated ARARs required by 40 CFR 761.61(a)(4)(i)(A) and (B). The remedy will also meet ARARs for off-site disposal of non-RCRA hazardous wastes if they are found on site. RCRA requirements for on-site staging piles (40 CFR 264.554) will be met using appropriate design criteria and standards. ARARs related to construction and off site disposal, such as BAAQMD regulations for fugitive emissions and visible emissions, will be met using best management practices for construction and transportation. Because no federal or state ARARs exist for cadmium in soil, cadmium cleanup levels were determined through a site-specific risk analysis. ARARs for land use controls will be met by negotiated property transfer documents, including a quitclaim deed and covenant to restrict use of property.

2.13.6 5-Year Review Requirements

Because the selected remedy will leave hazardous substances on site above levels that allow for unlimited use and unrestricted exposure, a statutory 5-year review is required for this remedy.

2.14 DOCUMENTATION OF SIGNIFICANT CHANGES

The Navy has made one significant change to the proposed plan and is documenting it in this RAP/ROD. Specifically, the PCB cleanup level for the eastern two-thirds of IR02, also known as the industrial portion, has been changed from 25 mg/kg to 10 mg/kg. Like the 25 mg/kg standard discussed in the proposed plan, this cleanup standard meets the CERCLA statutory mandate for a remedy that is protective and achieves ARARs. It also reflects the Navy's risk management decision for the selected cleanup level to be consistent with site-specific conditions and future land use considerations as presented in the FS.

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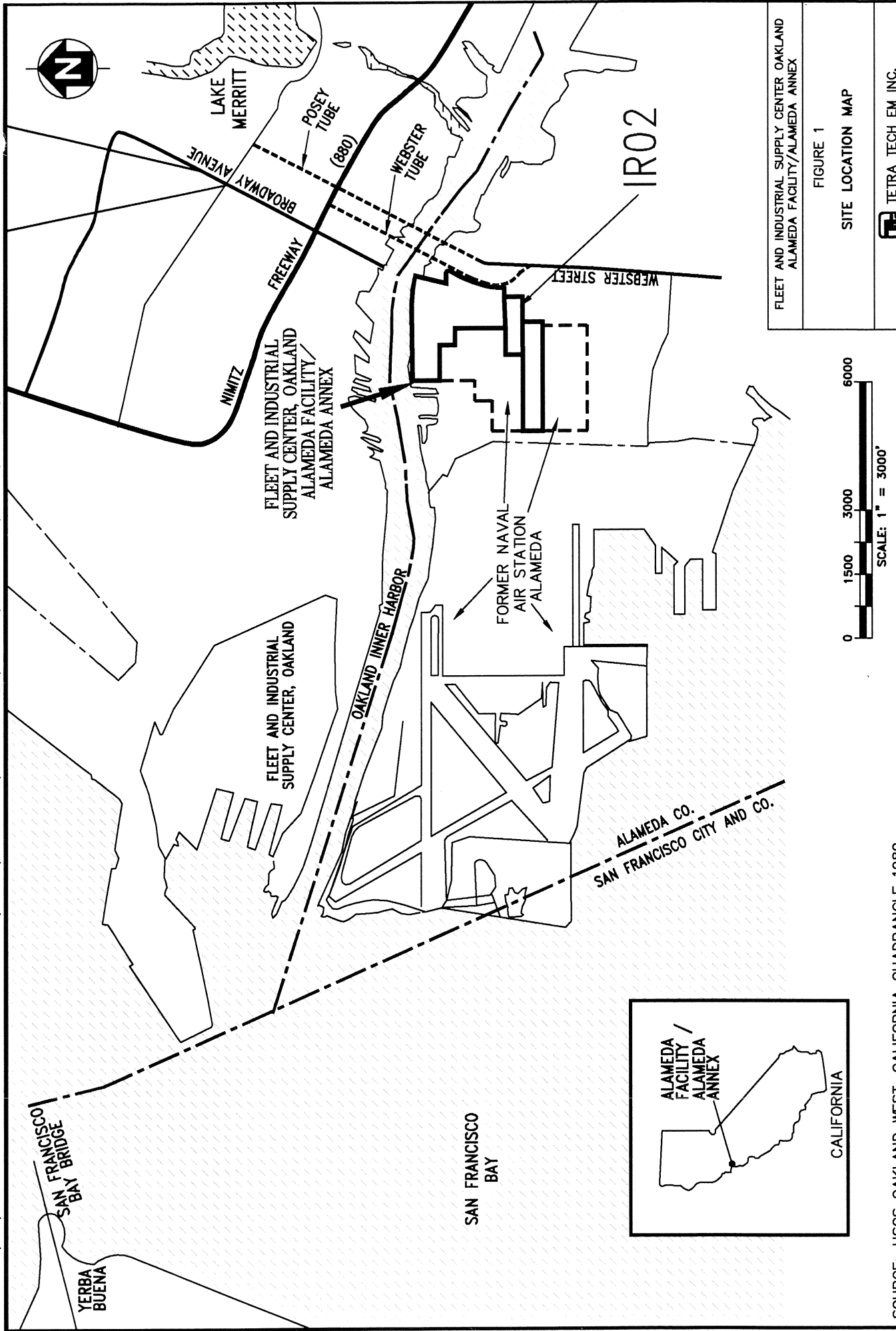
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FIGURES

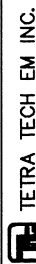


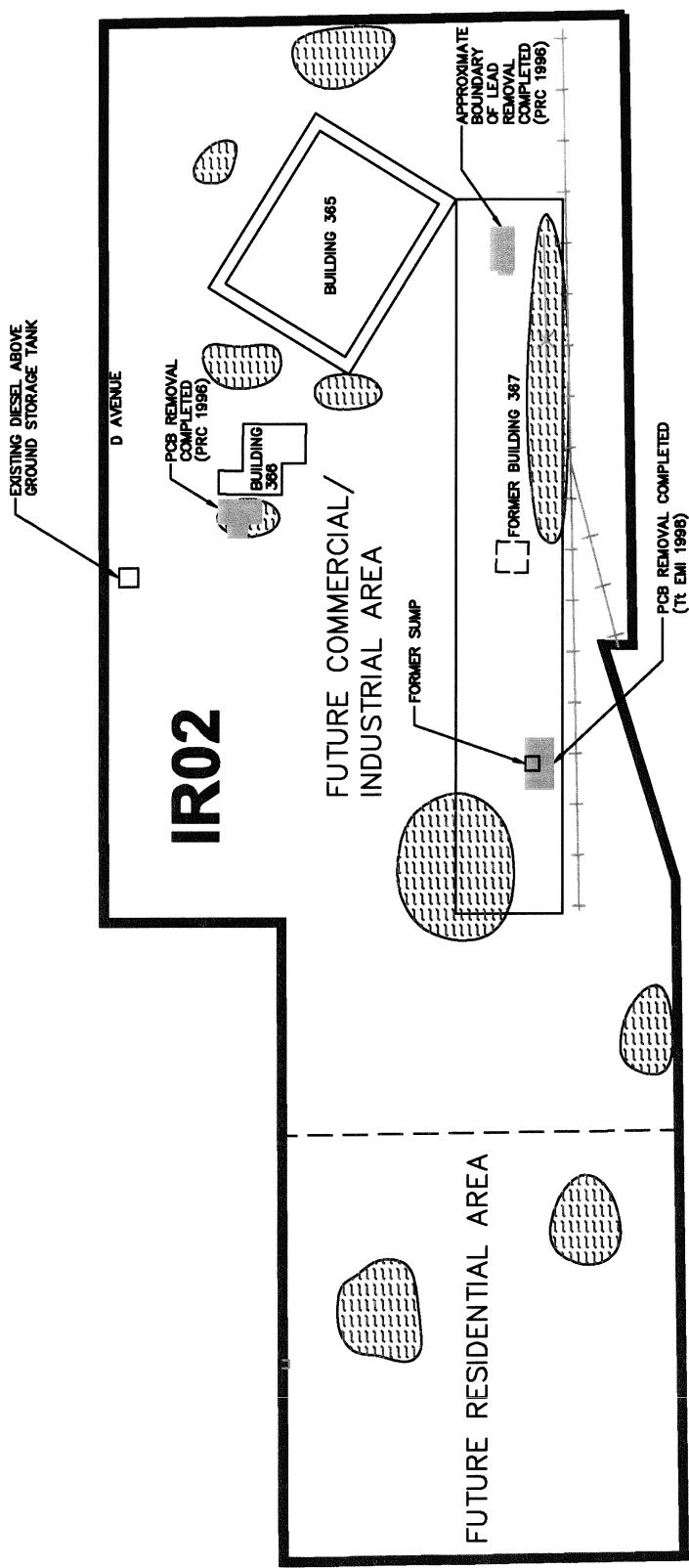
SOURCE: USGS OAKLAND WEST, CALIFORNIA QUADRANGLE 1980

FLEET AND INDUSTRIAL SUPPLY CENTER OAKLAND
ALAMEDA FACILITY/ALAMEDA ANNEX







FIGURE 1

SITE LOCATION MAP






LEGEND

-  PCB or Lead Removal Completed
-  PCB
-  Polychlorinated Biphenyl
-  Areas of Contamination
-  Railroad Tracks
-  Screening Lot and Scrapyard Area



FISCO ALAMEDA FACILITY / ALAMEDA ANNEX ALAMEDA, CALIFORNIA
FIGURE 2
AREAS OF CONTAMINATION WITH EXCEEDANCES OF PCB AND CADMIUM CLEANUP LEVELS
 TETRA TECH EM INC.

TABLES

TABLE 1

**SUMMARY OF RISK CHARACTERIZATION FOR FLEET AND INDUSTRIAL
SUPPLY CENTER OAKLAND ALAMEDA FACILITY ALAMEDA ANNEX
INSTALLATION RESTORATION SITE 02**

Land Use Scenario	Potential PCB Cancer Risk^a	Potential Hazard Index - Cadmium
Future Residential	7.0E-05	8.64
Current Worker ^b	3.0E-03	NA
Future Worker	1.0E-05	NA

Notes:

- a From 1996 RI for entire IR02 site; potential cancer risk estimate is for total PCBs
- b All potential risk estimates for future land use scenarios incorporate soil data from 0 to 10 feet bgs.
- bgs Below ground surface
- NA Hazard index did not exceed 1.0 for the exposure scenario
- PCB Polychlorinated biphenyl

TABLE 2

**COMPARATIVE ANALYSIS OF ALTERNATIVES
INSTALLATION RESTORATION SITE 02**

Alternative Criteria	1	3	4	5	6
	No action	Soil Consolidation, Cap and Land Use Controls	Soil Excavation, Off- site Disposal and Land Use Controls	Soil Excavation, On- site Soil Washing and Land Use Controls	Soil Excavation, On- site Emulsion Recycling and Land Use Controls
Overall Protectiveness	Not protective	Reduces risk below 10^{-4}	Reduces risk below 10^{-4}	Reduces risk below 10^{-4}	Reduces risk below 10^{-4}
Compliance with ARARs	Does not comply	Complies with ARARs	Complies with ARARs	Complies with ARARs	Complies with ARARs
Long-term Effectiveness	Not effective in long- term	Lowest long-term effectiveness; dependent on enforcement of land use controls on industrial portion and cap integrity	Highest long-term effectiveness; dependent on enforcement of land use controls on industrial portion	High long-term effectiveness if treatment goal is reached; effectiveness on site-specific soil has not been tested; requires enforcement of land use controls	Low long-term effectiveness; dependent on enforcement of land use controls; effectiveness on site- specific soil has not been tested
Reduction of Toxicity, Mobility and Volume Through Treatment	None	Does not use treatment	Does not use treatment	Reduces toxicity through soil washing	Reduces mobility by binding contaminants in non-leachable matrix

TABLE 2 (Continued)

COMPARATIVE ANALYSIS OF ALTERNATIVES
INSTALLATION RESTORATION SITE 02

Alternative	1	3	4	5	6
Short-term Effectiveness	Not effective in short-term	Excavation and construction activities may pose risk to remediation workers	Excavation and construction activities may pose risk to remediation workers; off-site soil transportation may increase potential for off-site releases	Excavation and construction activities may pose risk to remediation workers	Excavation and construction activities may pose risk to remediation workers
Implementability	No construction, easily implementable	Easy to construct, no special equipment needed; negotiations for land use controls may be needed	Easy to construct, no special equipment needed	More extensive construction and material handling than 3 or 4; negotiations for land use controls may be needed	More extensive construction and material handling than 3 or 4; negotiations for land use controls may be needed
Cost	\$ 0	\$ 365,800	\$ 995,100	\$ 1,965,000	\$ 1,076,900
State Acceptance	Unacceptable	Assessed after public comment	Assessed after public comment	Assessed after public comment	Assessed after public comment
Community Acceptance	Unacceptable	Assessed after public comment	Assessed after public comment	Assessed after public comment	Assessed after public comment

TABLE 3
COST ESTIMATE SUMMARY FOR THE SELECTED REMEDY
EXCAVATION, OFF-SITE DISPOSAL AND LAND USE CONTROLS
INSTALLATION RESTORATION SITE 02

Task Description	Unit	Unit Cost (\$)	Quantity	Cost (\$)
Direct Capital Costs				
Mobilization and Site Preparation				
Mobilization/Demobilization	LS	\$10,000.00	1	\$10,000
Clearing	ACRE	\$45.04	6	\$259
Utility Clearance	LS	\$5,000.00	1	\$5,000
Temporary Chain-link Fence	LF	\$4.70	3,000	\$14,100
Double Swing Gate	EA	\$757.00	1	\$757
Signs	EA	\$50.98	20	\$1,020
Stock Pile Area (100 x 100 feet)	LS	\$10,000.00	1	\$10,000
Mulch Hay Bale (36 x 24 x 18 inches)	EA	\$3.68	1,000	\$3,680
Catch Basin Demolition and Restoration	LS	\$10,000.00	1	\$10,000
Utilities Relocation	LS	\$4,000.00	1	\$4,000
Subtotal				\$58,816
Decontamination Facility (20 x 25 feet)				
Pad Subgrade Preparation	CY	\$2.41	20	\$48
40-mil VLDPE liner	SF	\$0.96	650	\$624
HDPE Drainage Net	SF	\$0.26	400	\$104
Gravel Packing	CY	\$18.97	20	\$379
Berms	CY	\$31.32	15	\$470
12-inch Perforated Sump	LF	\$10.66	3	\$32
Submersible Pump	MONTH	\$85.96	3	\$258
Plywood	SF	\$4.44	650	\$2,886
Liquid Soap 55-gal. Drum	EA	\$165.78	2	\$332
Pressure Washer	MONTH	\$636.10	3	\$1,908
Steam Cleaner	MONTH	\$1,207.12	3	\$3,621
Trailer Facility	MONTH	\$552.60	3	\$1,658
Temporary Storage Tank	MONTH	\$120.00	3	\$360
Subtotal				\$12,680
Earthwork (Western and Eastern Areas)				
Excavation	CY	\$2.29	9,206	\$21,069
Dust Control	SF	\$0.01	237,572	\$2,376
Backfill (Clean Fill)	CY	\$4.51	9,206	\$41,520
Hauling Backfill	CY	\$7.27	9,206	\$66,929
Backfilling	CY	\$1.76	9,206	\$16,203
Fill Spreading	CY	\$1.85	9,206	\$17,032
Compaction/Grading	CY	\$1.82	9,206	\$16,755
Subtotal				\$181,884

TABLE 3 (Continued)
COST ESTIMATE SUMMARY FOR THE SELECTED REMEDY
EXCAVATION, OFF-SITE DISPOSAL AND LAND USE CONTROLS
INSTALLATION RESTORATION SITE 02

Task Description	Unit	Unit Cost (\$)	Quantity	Cost (\$)
Sampling and Analysis				
PCB Field Screening (vendor)	EA	\$50.00	105	\$5,227
Excavation Confirmation Sampling				
Total CLP PCBs	EA	\$184.20	10	\$1,925
Cadmium (vendor)	EA	\$10.00	105	\$1,050
Subtotal				\$8,202
Soil Characterization for Landfill Disposal				
Total PCBs	EA	184.2	20	\$3,731
Metals	EA	251.74	20	\$5,099
VOCs	EA	\$276.30	20	\$5,596
SVOCs	EA	\$429.80	20	\$8,705
TPH-G	EA	\$147.36	20	\$2,985
TPH-D	EA	\$147.36	20	\$2,985
California WET Analysis	EA	\$1,921.80	20	\$38,924
Subtotal				\$68,023
PCB and Cd-Soil Disposal at Class II Landfill				
Transport OffSite (vendor quote)	CY	\$6.37	9,206	\$58,644
Disposal OffSite (vendor quote)	CY	\$30.00	9,206	\$276,188
Subtotal				\$334,831
Debris Disposal at Class III Landfill				
Transport (Vendor quote)	CY	\$6.37	300	\$1,911
Disposal (Vendor quote)	CY	\$10.00	300	\$3,000
Subtotal				\$4,911
Direct Capital Total				\$669,347
Indirect Capital Cost				
Engineering Expenses (15%)				\$100,402
Project Management/Administration (5%)				\$33,467
Legal/License/Permits (1%)				\$6,693
Indirect Capital Total				\$140,563
Capital Costs Total				
Direct Capital Total				\$669,347
Indirect Capital Total				\$140,563
Capital Total				\$809,910
Contingency Allowances (20%)				\$161,982
Capital Costs Total				\$995,124
Annual O&M				\$0
Present Worth O&M Cost				\$0
Total Present Worth Cost				\$995,100

TABLE 3 (Continued)
COST ESTIMATE SUMMARY FOR THE SELECTED REMEDY
EXCAVATION, OFF-SITE DISPOSAL AND LAND USE CONTROLS
INSTALLATION RESTORATION SITE 02

Notes:

CLP - Contract Laboratory Program

CY - Cubic Yards

EA - Each

HDPE - High Density Polyethylene

LF - Linear Feet

LS - Lump Sum

O&M - Operation and Maintenance

PCB - Polychlorinated Biphenyl

SF - Square Feet

WET - Waste Extraction Test

APPENDIX A
ADMINISTRATIVE RECORD INDEX
(11 Pages)

Document Title	Date	Author
Site Investigation (SI) and Sampling Plan (SP) for Screening Lot and Scrapyard	April 14, 1987	ERM
Preliminary Assessment (PA) Report	April 1, 1988	NEESA
Phase II SI at Warehouse Area	May 1, 1988	ERM
Addendum to PA Report	January 1, 1990	NAVY
Comments on Draft Remedial Investigation/Feasibility Study (RI/FS), Work Plan (WP), SP, Quality Assurance Project Plan (QAPP), and Health and Safety Plan (HASP)	January 1, 1990	DHS
Draft RI/FS WP, SP, QAPP, and HASP for Screening Lot and Scrapyard	November 29, 1990	NAVY
Comments on RI/FS Study at Screening Lot and Scrapyard	January 12, 1991	BCDC
Additional Comments on RI/FS Study at Screening Lot and Scrapyard	February 28, 1991	BCDC
Remarks on Navy's Responses to Department of Health Services Comments on Draft RI/FS WP	April 5, 1991	DHS
Comments on RI/FS WP	May 20, 1991	DHS
Final RI/FS Field Sampling Plan (FSP), WP, QAPP, HASP, Screening Lot and Scrapyard Area	May 30, 1991	PRC
Clarification on Use of Background Soil and Groundwater Samples	October 9, 1992	DTSC
Resource Conservation and Recovery Act (RCRA) Facility Assessment	December 1, 1992	DTSC
Facility Background Sampling	December 8, 1992	NAVY
Sampling Results, Technical Memorandum (TM), Screening Lot and Scrapyard Area, Naval Supply Center, Oakland, Alameda Annex and Facility, Alameda, California	February 1993	PRC
Sampling Results, Draft TM, Volumes I through VI of VI	February 1, 1993	PRC
Submission of Draft Risk Assessment (RA) Scoping Document	March 8, 1993	NAVY
Submission of Metals Summary Reports	March 31, 1993	NAVY
Comments on TM	April 19, 1993	DTSC
Additional Comments on TM	April 29, 1993	DTSC
Comments on RA Scoping Document	April 29, 1993	DTSC
Draft Addendum Phase II WP, SP, and QAPP	July 29, 1993	NAVY
Draft RI/FS Phase II WP, FSP, QAPP Addendum	July 29, 1993	PRC
Comments on Draft Addendum Phase II WP, SP and QAPP	August 13, 1993	RWQCB
Comments on RI/FS, FSP and QAPP	August 13, 1993	DTSC

Document Title	Date	Author
Draft Final Phase II Addendums: WP and FSP	August 30, 1993	NAVY
Response to Comments on Draft Phase II Addendums: QAPP and Radiological Survey	September 23, 1993	NAVY
Comments on RI/FS Study Phase II Draft Final WP and FSP Addendum	October 4, 1993	DTSC
Final Phase II Addendums: WP, FSP, and QAPP	October 27, 1993	NAVY
Comments on RI/FS Final Phase II WP and FSP Addendum	November 23, 1993	CALF&G
Final Action Memorandum (AM), Site 02 - Screening Lot and Scrapyard Area Polychlorinated Biphenyl (PCB) and Lead Contaminated Soil Non-Time Critical	January 10, 1994	NAVY
Interim Removal Action (IRA) WP Addendums: WP, FSP, QAPP, HASP	January 10, 1994	NAVY
RI/FS Background Sampling at College of Alameda	January 24, 1994	NAVY
Draft RI/FS Removal Action (RA) Engineering Evaluation/Cost Assessment (EE/CA) for PCB and Lead Contaminated Soils	February 25, 1994	NAVY
Comments on Draft RA, EE/CA for PCB and Lead Contaminated Soils	March 31, 1994	DTSC
Draft Final IRA WP Addendums: WP, SP, QAPP, HASP, Community Relations Plan (CRP)	April 1, 1994	NAVY
Response to Agency Comments on Draft RI/FS RA EE/CA for PCB and Lead Contaminated Soils	April 13, 1994	NAVY
Comments on Draft Final IRA WP Addendums	April 22, 1994	BAAQMD
Revised Human Health Risk Assessment (HHRA) Scoping Document	May 5, 1994	NAVY
Comments on RI/FS RA EE/CA for Soil Removal	June 10, 1994	DTSC
Identification of State Applicable or Relevant and Appropriate Requirements (ARAR)	July 6, 1994	NAVY
Comments on Revised HHRA Scoping Document	July 8, 1994	DTSC
Draft Final EE/CA for PCB and Lead Contaminated Soils RA	July 14, 1994	NAVY
Agency Comments on Revised Draft RI/FS Interim IRA WP, FSP, HASP, CRP and QAPP Addenda	August 10, 1994	DTSC
Agency Comments on Revised Draft RI/FS IRA WP, FSP, HASP, CRP and QAPP Addenda	August 10, 1994	DTSC
Agency Approval on Draft Final RI/FS RA EE/CA for PCB and Lead Contaminated Soils	August 15, 1994	DTSC
Final RI/FS RA EE/CA for Lead and PCB Contaminated Soils	August 26, 1994	PRC
Final RI/FS RA EE/CA for Lead and PCB Contaminated Soils	August 29, 1994	NAVY
State ARARs	August 29, 1994	DTSC
Public Notice of Comment Period for EE/CA for Installation Restoration (IR) Site 02	August 31, 1994	NAVY

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Document Title	Date	Author
State ARARs	September 27, 1994	DTSC
Navy Response to Agency Letter (8/10/94) Regarding Agency Comments on Draft RI/FS IRA WP, FSP, HASP, CRP, QAPP	October 3, 1994	NAVY
Draft AM for Site 02-Screening Lot and Scrapyard Area PCB and Lead Contaminated Soils RA	October 22, 1994	NAVY
Request for Clarification on Property Boundary of Fleet and Industrial Supply Center Oakland (FISCO) Alameda Facility/Alameda Annex	November 1, 1994	DTSC
Agency Approval on Use of Investigation Derived Waste (IDW) Waste Water for Dust Control	November 3, 1994	RWQCB
Agency Comments on Draft AM Site 02-Screening Lot and Scrapyard Area	November 16, 1994	DTSC
Response to Agency Comments on Revised HHRA Scoping Documents	December 14, 1994	NAVY
Final AM, Site 02, Screening Lot and Scrapyard Area PCB and Lead Contaminated Soil, Non-Time Critical	January 9, 1995	NAVY
Agency Comments on HHRA Assessment Scoping Document	January 24, 1995	DTSC
Draft RI (Volumes I through V)	March 24, 1995	NAVY
Draft WP Site 02 Screening Lot and Scrapyard Area PCB and Lead Contaminated Soils RA	April 19, 1995	NAVY
WP, Site 02 – Screening Lot and Scrapyard Area, PCB and Lead-Contaminated Soils, Non-Time Critical RA, Revision 1 (Replacement Pages only)	May 1, 1995	ITC
Comments on the Draft RI Report – March 1995	May 26, 1995	RWQCB
Comments on the Draft RI Report	May 31, 1995	DTSC
Identification of State ARARs for the RI/FS	June 19, 1995	NAVY
ARARs	June 23, 1995	BDW
Response to Letter of Claim Damages from Alleged “Hazardous Substances Emanating from U.S. Naval Supply Center”	June 30, 1995	NAVY
Final WP Site 02 Screening Lot and Scrapyard Area PCB and Lead Contaminated Soil RA	July 7, 1995	NAVY
Identification of State ARARs	July 13, 1995	DPESTR
ARARs	July 17, 1995	OEHHA
Draft Final RI Report (Volumes I and II) dated July 1995	July 25, 1995	NAVY
Response to Comments on RI/FS	July 26, 1995	NAVY
Draft EE/CA Addendum for PCB Contaminated Soils; RI/FS RA	August 1, 1995	PRC
Comments on the Draft RI/FS Report, Response to Navy Comments	August 18, 1995	CALF&G

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Document Title	Date	Author
Comments on the Navy's Response of 26 July 1995 on the Draft RI Report and the Draft Final RI Report -- July 1995	August 30, 1995	RWQCB
Comments on the Draft Final RI Report -- July 1995, and Navy's Response to Comments	August 30, 1995	DTSC
Department of Fish and Game's Comments on the Draft Final Phase II RI	September 13, 1995	DTSC
Comments on Draft RA EE/CA Addendum for PCB-Contaminated Soils	September 26, 1995	DTSC
California Environmental Protection Agency, department of Toxic Substance Control (DTSC) Request for Navy to Reconsider Usage of Site-Specific PRG in Draft Final RI Report	November 1, 1995	DTSC
Final EE/CA for PCB Contaminated Soils and Sump Removal -- November 1996	November 13, 1995	NAVY
FISCO the Annex Site, Alameda, California, Final Remedial Investigation Report	January 1996	PRC
Final RI Report; Volumes I through V	January 1, 1996	PRC
Agree to Usage of DMB to Replace Site-Specific Preliminary Remediation Goals (PRG) in the Draft Final RI Report	January 31, 1996	DTSC
Final RA EE/CA Addendum for PCB Contaminated Soils and Sump Removal	March 1, 1996	PRC
Comments on the Final RI Report	March 7, 1996	DTSC
Final RI Report -- 7 March 1996; (2) Response to Comments; and (2) Revised Pages	April 4, 1996	NAVY
Response to Comments on the Final RI Report -- 7 March 1996	April 4, 1996	NAVY
Revised Pages for the Final RI Report -- 7 March 1995	April 4, 1996	NAVY
Comments on the Final RI Report	May 8, 1996	DTSC
Comments on the Final RI Report -- January 1996	May 31, 1996	RWQCB
Response to Comments on the Final EE/CA Addendum, PCB Contaminated Soil and Removal of Sump, Non-Time Critical RA	June 20, 1996	NAVY
Response to Comments on the Final RI Report	July 8, 1996	NAVY
ARARs for the Interim RA IR Site 02, Screening Lot and Scrapyard Area	September 19, 1996	NAVY
Final Basewide EBS Report, FISCO, Alameda Facility/Alameda Annex, Alameda, California	December 1996	PRC
Final Basewide EBS Report, Revision 1	December 30, 1996	PRC
Draft RA Implementation Report for Removal of PCB and Lead Contaminated Soils, Screening Lot and Scrapyard Area	February 1, 1997	PRC
Final Engineering EE/CA for PCB Contaminated Soils and Sump Removal	March 1, 1997	PRC
Request for Identification of ARARs for the FS	March 19, 1997	NAVY
Comments on the Draft RA IR for Removal of PCB and Lead Contaminated Soils	April 25, 1997	DTSC

Document Title	Date	Author
Comments on the Final RA Engineering Evaluation/Cost Analysis (EE/CA) for PCB Contaminated Soils – March 1997	April 30, 1997	DTSC
DTSC Solicitation for ARARs	May 1, 1997	DTSC
Comments on the Final Basewide EBS Report	May 6, 1997	EPA
Draft FS, Site 02 Screening Lot and Scrapyard Area – August 1997	August 19, 1997	NAVY
Interim Removal Action (IRA) Site 02, Replacement Pages of the Implementation Report – August 1997	September 2, 1997	NAVY
Comments on the Draft FS, Site 02 Screening Lot and Scrapyard Area – August 1997	October 10, 1997	EPA
AM, IR Site 02 Screening Lot and Scrapyard Area PCB Contaminated Soils and Sump Removal, Non-Time Critical RA	October 16, 1997	NAVY
Summarized Discussion between the Navy and Regulatory Agencies Regarding the Draft FS, Site 02 Screening Lot and Scrapyard Area	October 21, 1997	DTSC
FS, Site 02 Screening Lot and Scrapyard Area Additional Sampling (Chromium) for HHRA	October 28, 1997	NAVY
Comments on the Draft AM for IR Site 02	November 7, 1997	DTSC
Response to Concerns Regarding the Chromium Concentrations, FS Site 02, Screening Lot and Scrapyard Area Additional Sampling Hexavalent Chromium	November 25, 1997	NAVY
Comments on the Hexavalent Chromium Sampling at Site 02	December 1, 1997	DTSC
Draft History of NAS Alameda and Alameda Point NAS Alameda, Alameda, California	January 1998	IT
Response to Comments on Interim RA AM for IR Site 02	January 1, 1998	NAVY
Final WP, Quality Control Plan (QCP), Environmental Protection Plan, Site Health and Safety Plan (HASP), for the PCB Contaminated Soil Removal	January 1, 1998	ITC
Final AM, IR Site 02 Screening Lot and Scrapyard Area, Polychlorinated Biphenyl-Contaminated Soils and Sump Removal, Non-Time-Critical RA	January 1, 1998	TtEMI
Final AM, IR Site 02 Screening Lot and Scrapyard Area, Polychlorinated Biphenyl (PCB) Contaminated Soils and Sump Removal, Non-Time Critical	January 16, 1998	NAVY
Draft FS for Soil at SWMU 1	January 30, 1998	TtEMI
Site 18 Storm Sewer System Solids and Debris Removal Action Closeout Report, NAS Alameda, California	April 1998	TtEMI
Comments on the Draft FS for Soil at SWMU 1	May 11, 1998	EPA
Comments on the Draft FS for IR Site 02 (IR02) – January 1998	May 11, 1998	DTSC
Draft On-scene Coordinator Report, IR Site 02 Screening Lot and Scrapyard Area Railroad Sump	June 25, 1998	NAVY
Solicitation for ARARs	July 9, 1998	DTSC

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Document Title	Date	Author
Final On-scene Coordinator Report, IR Site 02 Screening Lot and Scrapyard Area Railroad Sump	July 14, 1998	TtEMI
Response to Solicitation for Applicable or Relevant and Appropriate Requirements (ARARs)	July 20, 1998	CALF&G
Comments on the Draft On-scene Coordinator Report – 26 June 1998	July 27, 1998	DTSC
Ecological Assessment of the Sediment at Outfall 1, FISCO the Annex Site Alameda, California	August 7, 1998	TtEMI
FISCO the Annex Site Alameda, On-scene Coordinator Report, RA IR Site 02 Screening Lot and Scrapyard Area Railroad Sump	August 14, 1998	TtEMI
Response to Comments on the Draft IR Site 02 FS; Proceeding with Development of the Draft Final	August 28, 1998	NAVY
Draft Final FS for Soil at IR Site 02	September 1, 1998	TtEMI
IR Site 02 FS; Additional Information Regarding Fruit Tree Roots	September 2, 1998	NAVY
Comments on the Potential Exposure Pathway via Fruit Ingestion	October 8, 1998	DTSC
Comments on the IR Site 02 FS, Attachment A – 02 September 1998	October 16, 1998	EPA
Response to Comments on the FS, Fruit Tree Groundwater Uptake	November 9, 1998	NAVY
Draft Basewide Focused FS for Soil and Groundwater	November 24, 1998	TtEMI
FISCO the Annex Site, Alameda, California, Final Feasibility Study for Soil at Solid Waste Management Unit (SWMU) 1	January 22, 1999	TtEMI
Response to Comments on the Draft Basewide Focused FS	March 31, 1999	NAVY
Final Community Relations Plan, Second Addendum	April 30, 1999	TtEMI
Draft Supplemental Environmental Baseline Survey	June 7, 1999	TtEMI
Proposed Monitoring Well Abandonment	July 14, 1999	NAVY
Corrections to Figures and Text for Various Reports of the IRP	July 20, 1999	NAVY
Transmittal of Tables Summarizing Analytical Data for Samples Collected	July 26, 1999	ERM
A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents	July 30, 1999	EPA
Meeting Minutes of 10 August 1999 Base Realignment and Closure Cleanup Team (Includes Agenda, Sign-In Sheet, and Handout)	September 2, 1999	NAVY
Internal Draft Work Plan, Destruction of Wells	September 10, 1999	TtEMI

ADMINISTRATIVE RECORD INDEX: IR SITE 02, FLEET AND INDUSTRIAL SUPPLY CENTER ALAMEDA FACILITY/ALAMEDA ANNEX

Document Title	Date	Author
Correction to DTSC Letter Dated 23 November 1999 Regarding Technical Issues to be Resolved – Incorrectly Identified SWMU1 as IR Site 1 – Should be Site 2 (Parcel 29)	November 29, 1999	DTSC
Comments on Technical Memorandum: Supplemental Description of Methods for Use in the Human Health Risk Assessment	November 29, 1999	DTSC
FISC Alameda Facility Alameda Annex Base Closure Team (BCT) Meeting Minutes	December 14, 1999	TtEMI
Minutes of the December 14, 1999 Restoration Advisory Board (RAB) Meeting	December 14, 1999	TtEMI
Final Workplan Destruction of Wells	December 17, 1999	TtEMI
Minutes of the January 11, 2000 Restoration Advisory Board (RAB) Meeting	January 11, 2000	TtEMI
Baseline Human Health Risk Assessment (HHRA)	January 14, 2000	Newfields, Inc.
Proposed Groundwater Sampling Approach	January 14, 2000	ERM
Baseline Human Health Risk Assessment Report	January 14, 2000	Newfields Inc.
Draft Design Basis Report; Removal of Contaminated Surface Soil	January 31, 2000	TtEMI
Navy Response to Proposed Sampling Approach	February 2, 2000	NAVY
Minutes of the February 8, 2000 Base Realignment and Closure Cleanup Team (BCT) Meeting	February 8, 2000	TtEMI
Minutes of the February 8, 2000 Restoration Advisory Board (RAB) Meeting	February 8, 2000	TtEMI
Minutes of the March 14, 2000 Base Realignment and Closure Cleanup Team (BCT) Meeting	March 14, 2000	TtEMI
Minutes of the March 14, 2000 Restoration Advisory Board (RAB) Meeting	March 14, 2000	TtEMI
Minutes of the April 11, 2000 Base Realignment and Closure Cleanup Team (BCT) Meeting	April 11, 2000	TtEMI
Minutes of the April 11, 2000 Restoration Advisory Board (RAB) Meeting	April 11, 2000	TtEMI
Draft Well Closure Report for Abandonment of Wells	April 21, 2000	TtEMI
Minutes of May 3, 2000 Base Realignment and Closure Cleanup Team (BCT) Meeting	May 3, 2000	TtEMI
Federal Facilities Site Remediation Agreement (FFSRA), Alameda Facility Alameda Annex	May 9, 2000	NAVY & DTSC
FISC Alameda Facility Alameda Annex Restoration Advisory Board (RAB) Meeting Minutes	May 9, 2000	TtEMI
Letter; Institutional Controls	May 11, 2000	EPA
Internal Draft Supplemental Remedial Investigation for Polynuclear Aromatic Hydrocarbon Contaminated Soil	May 31, 2000	TtEMI
Draft Supplemental Remedial Investigation for Polynuclear Aromatic Hydrocarbon Contaminated Soil	June 12, 2000	TtEMI

ADMINISTRATIVE RECORD INDEX: IR SITE 02, FLEET AND INDUSTRIAL SUPPLY CENTER ALAMEDA FACILITY/ ALAMEDA ANNEX

Document Title	Date	Author
Minutes of the June 13, 2000 Base Realignment and Closure Cleanup Team (BCT) Meeting	June 13, 2000	TtEMI
Minutes of the June 13, 2000 Restoration Advisory Board (RAB) Meeting	June 13, 2000	TtEMI
Alameda Naval Air Station and Alameda Facility/ Alameda Annex Public Meeting Transcript	June 29, 2000	Atkinson-Baker
Response to Mr. Daniel Meer's 11 May 2000 letter regarding retention of an interest by Navy for enforcement of institutional controls in property transferring to City of Alameda	June 29, 2000	NAVY
Covenant To Restrict Use of Property (Environmental Restrictions)	July 7, 2000	DTSC & City of Alameda
Quitclaim Deed and Environmental Restrictions Pursuant to California Civil Code Section 1471 for FISC Alameda	July 7, 2000	Navy & City of Alameda
Quitclaim Deed and Environmental Restrictions Pursuant to California Civil Code Section 1471 for East Housing Portion of NAS Alameda	July 7, 2000	Navy and Alameda Reuse and Re-development Authority
Minutes of the July 11, 2000 Base Realignment and Closure Cleanup Team (BCT) Meeting	July 11, 2000	TtEMI
Minutes of the July 11, 2000 Restoration Advisory Board (RAB) Meeting	July 11, 2000	TtEMI
Comments on the Draft Supplemental Remedial Investigation for Polynuclear Aromatic Hydrocarbon (PAH) Contaminated Soil	July 14, 2000	DTSC
Draft Site Management Plan	July 18, 2000	TtEMI
Preliminary Draft Assessment/Site Inspection/Action Level Decision Document	August 14, 2000	IT Corp.
Comments on the Draft Site Management Plan	August 24, 2000	DTSC
Minutes of September 12, 2000 Restoration Advisory Board (RAB) Meeting	October 4, 2000	TtEMI
Minutes of September 12, 2000 Base Realignment and Closure Cleanup Team (BCT) Meeting	October 4, 2000	TtEMI
Minutes of October 10, 2000 Restoration Advisory Board (RAB) Meeting	October 10, 2000	TtEMI
Minutes of October 10, 2000 Base Realignment and Closure Cleanup Team (BCT) Meeting	October 10, 2000	TtEMI
Final Monitoring Well Abandonment Closure Report, Fleet and Industrial Supply Center, Alameda Facility	October 25, 2000	TtEMI
Quarterly Progress Report – May Through August 2000	November 1, 2000	Navy

Document Title	Date	Author
Draft Final Site Management Plan	November 9, 2000	TtEMI
Minutes of November 14, 2000 Base Realignment and Closure Cleanup Team (BCT) Meeting	November 14, 2000	TtEMI
Minutes of the November 14, 2000 Restoration Advisory Board (RAB) Meeting	November 14, 2000	TtEMI
Technical Memorandum Recommending Closeout	November 21, 2000	TtEMI
Minutes of the Base Realignment and Closure Cleanup Team (BCT) Meeting	December 12, 2000	TtEMI
Minutes of the January 9, 2000 Restoration Advisory Board (RAB) Meeting	January 9, 2001	TtEMI
Review and Comments on the Draft Final Supplemental RI/FS for Polynuclear Aromatic Hydrocarbon (PAH) Contamination	January 12, 2001	DTSC
Draft Final Supplemental Remedial Investigation and Draft Feasibility Study for PAH Contaminated Soil	January 31, 2001	TtEMI
Final RAP/ROD for the Marsh Crust at the Fleet and Industrial Supply Center Oakland Alameda Facility / Alameda Annex and Alameda Point	February 2, 2001	Navy
EPA Providing Remedy Approval of the Final RAP/ROD for March Crust at FISC and Marsh Crust and Former Subtidal Area at Alameda Point	February 13, 2001	EPA
Minutes of Public Meeting on April 19, 2001 for Proposed Plan for IR02	April 19, 2001	Navy
Comments from Alameda Unified School District on Proposed Plan and draft RAP/ROD for IR02	April 25, 2001	Alameda Unified School District
Comments from Clearwater Revival Company (CRC) on Proposed Plan and draft RAP/ROD for IR02	May 1, 2001	CRC
Comments from Alameda Point Collaborative on Proposed Plan and draft RAP/ROD for IR02	May 1, 2001	Alameda Point Collaborative
Comments from Arc Ecology on Proposed Plan and draft RAP/ROD for IR02	May 2, 2001	Arc Ecology
Comments from East Bay Municipal Utility District	May 2, 2001	East Bay Municipal Utility District

ACRONYMS AND ABBREVIATIONS

AM	Action memorandum
ARAR	Applicable or relevant and appropriate requirement
BAAQMD	Bay Area Air Quality Management District
BCDC	San Francisco Bay Conservation and Development Commission
BCT	Base closure team
BRAC	Base realignment and closure
CALF&G	California Fish and Game Commission
CRP	Community relations plan
CRWQCB	California Regional Water Quality Control Board
DHS	Department of Health Services
DMB	Data management benchmark
DoD	Department of Defense
DPESTR	California Environmental Protection Agency, Department of Pesticide Regulation
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
EBS	Environmental baseline survey
EE/CA	Engineering evaluation/cost analysis
EPA	U.S. Environmental Protection Agency
ERM	Environmental Resources Management West
FFSRA	Federal facilities site remediation agreement
FISCO	Fleet and Industrial Supply Center Oakland
FS	Feasibility study
FSP	Field sampling plan
HASP	Health and safety plan
HHRA	Human health risk assessment

IC	Institutional control
IDW	Investigation derived waste
IR	Installation restoration
IR02	Installation restoration site 02
IRA	Interim removal action
IRP	Installation restoration program
ITC	IT Corporation
NEESA	Naval Energy and Environmental Support Activity
OEHHA	Office of Environmental Health Hazard Assessment
PA	Preliminary assessment
PAH	Polynuclear aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PRC	PRC Environmental Management Inc.
PRG	Preliminary remediation goals
QAPP	Quality assurance project plan
QCP	Quality control plan
RA	Removal action
RA	Risk assessment
RAB	Restoration advisory board
RAP	Remedial action plan
RCRA	Resource Conservation and Recovery Act
RJ/FS	Remedial investigation/feasibility study
ROD	Record of decision
RWQCB	Regional Water Quality Control Board
SI	Site investigation
SP	Sampling plan
SWMU	Solid waste management unit
TM	Technical memorandum
TtEMI	Tetra Tech EM Inc.
WP	Work plan

APPENDIX B
CALIFORNIA ENVIRONMENTAL QUALITY ACT
NEGATIVE DECLARATION

(34 Pages)

NEGATIVE DECLARATION
for
Site IR02 Remedial Action Plan,
Fleet and Industrial Supply Center Oakland Alameda Facility/Alameda Annex

Project Proponent:

U.S. Navy
Southwest Division, Naval Facilities Engineering Command

Contact: Michael McClelland
BRAC Environmental Coordinator, Alameda Point
Southwest Division, Naval Facilities Engineering Command
BRAC Office (Code 06CA.MM)
1230 Columbia Street, Suite 1100
San Diego, CA 92101-8517
619-532-0965

Project Description:

This project consists of the adoption of a Remedial Action Plan (RAP) for remedial actions for polychlorinated biphenyls (PCB) and cadmium in soil at Installation Restoration Site 02 (IR02) at the former Fleet and Industrial Supply Center, Oakland Alameda Facility/Alameda Annex (FISC Annex). The Navy has prepared a Draft RAP for IR02. The Department of Toxic Substances Control (DTSC) has reviewed this Draft RAP and approved it for distribution for public review and comment.

The Draft RAP is based on a series of studies that have been approved by DTSC. To reduce the risk of exposure to hazardous waste in soil at IR02, the Navy will excavate contaminated soil at the site to a depth of one foot or less.. Soil will be stockpiled on site pending analysis for disposal at a permitted offsite landfill. The excavated areas will be backfilled with clean fill. The western one-third of the site will be cleaned to allow unrestricted residential use. The eastern two-thirds of the site will be cleaned to allow industrial use, and land-use controls will be imposed to ensure that residential land use will be prohibited on that portion of the site. The remedy will permanently eliminate residual risks through source removal for the residential area, and will permanently reduce residual risks through source removal in the industrial area.

Upon adoption of the RAP, a detailed design will be prepared for DTSC review and adoption. It is anticipated that the preparation and approval of the detailed design will take approximately five weeks to complete.

The field work proposed in the RAP will occur after DTSC approval of the detailed design. This work, which will take approximately twelve weeks to complete, will be performed under a health and safety plan prepared in accordance with the California Code of Regulations, Title 7, Section

5192 for protection of workers, and in accordance with DTSC policies and procedures for the protection of the environment and community.

The remedy also establishes restrictions on the eastern two-thirds of the site (approximately 8 acres of the 10.6-acre site) which prohibit residential use, and bind all future property owners to these restrictions by recordation of a covenant on that property. The covenant will be executed by the City of Alameda and DTSC and shall be recorded by the City of Alameda. A covenant to restrict specific use of property is an institutional control that is recognized in the H&SC Sections 25222.1 and 25355.5 as an appropriate remedy when more active response actions are determined not to be practical. The H&SC requires that when evaluating institutional controls as remedial alternatives, the adequacy and reliability of the controls must be evaluated. Further, as with all remedies implemented pursuant to the H&SC, 5-year review is required to verify maintenance of the institutional control.

Pursuant to Assembly Bill 871, which became effective on January 1, 1999, DTSC is required to maintain a list of all land use restrictions recorded pursuant to Health and Safety Code sections 25200, 25200.10, 25202.5, 25222.1, 25229, 25230, 25355.5, and 25398.7. At a minimum, this list must provide the street address, or if a street address is not available, an equivalent description of location for a rural location or the latitude and longitude of each property. DTSC is also required to update the list as new land use restrictions are recorded, and make the list available to the public, upon request, and place the list on the DTSC Internet website. DTSC is evaluating our system for tracking the effectiveness of institutional controls, but this evaluation should not delay such remedies, including the one before us. Alternatives to institutional controls, such as excavation of soil and cleanup to standards suitable for unrestricted use are feasible, but the preferred alternative, cleanup to industrial standards, is consistent with the intended future use of the property as described in the *Community Reuse Plan* and the *Catellus Mixed Use Development Final Environmental Impact Report* (May 2000, City of Alameda).

Project Location:

The project for which this Negative Declaration is proposed is located at the FISC Annex in the City of Alameda, Alameda County. The FISC Annex is located between Webster Street and Main Street, and between the Oakland Inner Harbor and Atlantic Avenue, northwest of the College of Alameda. Installation Restoration Site 02 is located in the south eastern area of the FISC Annex and comprises about 10.6 acres.

Findings of Significant Effect on Environment:

The Department has determined that the proposed project could not have a significant effect on the environment. This finding is supported by the Special Initial Study prepared by the California Environmental Protection Agency, Department of Toxic Substances Control (attached).

Mitigation Measures:

No mitigation measures have been added.

Signature Margaret Case Date 6-13-01
Project Manager

Signature A. J. Lunde Date 6-25-01
Branch Chief

DRAFT NEGATIVE DECLARATION
for
Site IR02 Remedial Action Plan,
Fleet and Industrial Supply Center Oakland Alameda Facility/Alameda Annex

Project Proponent:

U.S. Navy
Southwest Division, Naval Facilities Engineering Command

Contact: Michael McClelland
BRAC Environmental Coordinator, Alameda Point
Southwest Division, Naval Facilities Engineering Command
BRAC Office (Code 06CA.MM)
1230 Columbia Street, Suite 1100
San Diego, CA 92101-8517
619-532-0965

Project Description:

This project consists of the adoption of a Remedial Action Plan (RAP) for remedial actions for polychlorinated biphenyls (PCB) and cadmium in soil at Installation Restoration Site 02 (IR02) at the former Fleet and Industrial Supply Center, Oakland Alameda Facility/Alameda Annex (FISC Annex). The Navy has prepared a Draft RAP for IR02. The Department of Toxic Substances Control (DTSC) has reviewed this Draft RAP and approved it for distribution for public review and comment.

The Draft RAP is based on a series of studies that have been approved by DTSC. To reduce the risk of exposure to hazardous waste in soil at IR02, the Navy will excavate contaminated soil at the site to a depth of one foot or less.. Soil will be stockpiled on site pending analysis for disposal at a permitted offsite landfill. The excavated areas will be backfilled with clean fill. The western one-third of the site will be cleaned to allow unrestricted residential use. The eastern two-thirds of the site will be cleaned to allow industrial use, and land-use controls will be imposed to ensure that residential land use will be prohibited on that portion of the site. The remedy will permanently eliminate residual risks through source removal for the residential area, and will permanently reduce residual risks through source removal in the industrial area.

Upon adoption of the RAP, a detailed design will be prepared for DTSC review and adoption. It is anticipated that the preparation and approval of the detailed design will take approximately five weeks to complete.

The field work proposed in the RAP will occur after DTSC approval of the detailed design. This work, which will take approximately twelve weeks to complete, will be performed under a health and safety plan prepared in accordance with the California Code of Regulations, Title 7, Section

5192 for protection of workers, and in accordance with DTSC policies and procedures for the protection of the environment and community.

The remedy also establishes restrictions on the eastern two-thirds of the site (approximately 8 acres of the 10.6-acre site) which prohibit residential use, and bind all future property owners to these restrictions by recordation of a covenant on that property. The covenant will be executed by the City of Alameda and DTSC and shall be recorded by the City of Alameda. A covenant to restrict specific use of property is an institutional control that is recognized in the H&SC Sections 25222.1 and 25355.5 as an appropriate remedy when more active response actions are determined not to be practical. The H&SC requires that when evaluating institutional controls as remedial alternatives, the adequacy and reliability of the controls must be evaluated. Further, as with all remedies implemented pursuant to the H&SC, 5-year review is required to verify maintenance of the institutional control.

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Project Location:

The project for which this Negative Declaration is proposed is located at the FISC Annex in the City of Alameda, Alameda County. The FISC Annex is located between Webster Street and Main Street, and between the Oakland Inner Harbor and Atlantic Avenue, northwest of the College of Alameda. Installation Restoration Site 02 is located in the south eastern area of the FISC Annex and comprises about 10.6 acres.

Findings of Significant Effect on Environment:

The Department has determined that the proposed project could not have a significant effect on the environment. This finding is supported by the Special Initial Study prepared by the California Environmental Protection Agency, Department of Toxic Substances Control (attached).

Mitigation Measures:

No mitigation measures have been added.

Signature Mary Rose Casu Date 3/23/01
Project Manager

Signature A. J. Lando Date 3-29-01
Branch Chief

CALIFORNIA ENVIRONMENTAL QUALITY ACT

SPECIAL INITIAL STUDY

For

*Site IR02 Remedial Action Plan,
Fleet and Industrial Supply Center Oakland Alameda Facility/Alameda Annex*

The Department of Toxic Substances Control (DTSC) has completed the following Special Initial Study for this project in accordance with the California Environmental Quality Act (§ 21000 et seq., California Public Resources Code) and implementing Guidelines (§ 15000 et seq., Title 14, California Code of Regulations). This Special Initial Study has also been used to satisfy the requirements of § 711.4, Fish and Game Code and § 753.5, Title 14, Code of California Regulations relating to filing of environmental fees.

I. PROJECT INFORMATION

Project Name: Site IR02 Remedial Action Plan, Fleet and Industrial Supply Center Oakland Alameda Facility/Alameda Annex (FISC Annex)

Site Location: City of Alameda, Alameda County (see Exhibit 1, Site Location Map)

Contact Person/ Address/ Phone Number: Michael McClelland / Southwest Division, Naval Facilities Engineering command / BRAC Office (Code 06A.MM) / 1230 Columbia Street, Suite 1100, San Diego, CA 92101-8517 / 619-532-1096

Project Description: The project is adoption of a *Remedial Action Plan* (RAP) that establishes a remedy for elevated concentrations of polychlorinated biphenyls (PCB) and cadmium found in shallow soil at Installation Restoration Site 2 at the Fleet and Industrial Supply Center Oakland, Alameda Facility/Alameda Annex (FISC Annex), as shown in Exhibit 2. The FISC Annex closed in 1998 and was transferred to the City of Alameda in 1999. This remedy provides for excavation of approximately 830 cubic yards of contaminated soil, offsite disposal, and backfilling with clean soil. The field work proposed in the RAP will occur after DTSC approval of the detailed design. This work, which will take approximately twelve weeks to complete, will be performed under a health and safety plan prepared in accordance with the California Code of Regulations, Title 7, Section 5192 for protection of workers, and in accordance with DTSC policies and procedures for the protection of the environment and community. The remedy also establishes restrictions on approximately 8 acres of the 10.6-acre parcel which prohibit residential use, and bind all future property owners to these restrictions by recordation of a covenant on that property. The covenant will be executed by the City of Alameda and DTSC and shall be recorded by the City of Alameda.

A covenant to restrict specific use of property is an institutional control that is recognized in the H&SC Sections 25222.1 and 25355.5 as an appropriate remedy when more active response actions are determined not to be practical. The H&SC requires that when evaluating institutional controls as remedial alternatives, the adequacy and reliability of the controls must be evaluated. Further, as with all remedies implemented pursuant to the H&SC, 5-year review is required to verify maintenance of the institutional control.

Pursuant to Assembly Bill 871, which became effective on January 1, 1999, DTSC is required to maintain a list of all land use restrictions recorded pursuant to Health and Safety Code sections 25200, 25200.10, 25202.5, 25222.1, 25229, 25230, 25355.5, and 25398.7. At a minimum, this list must provide the street address, or if a street address is not available, an equivalent description of location for a rural location or the latitude and longitude of each property. DTSC is also required to update the list as new land use restrictions are recorded, and make the list available to the public, upon request, and place the list on the DTSC Internet website. DTSC is evaluating our system for tracking the effectiveness of institutional controls, but this evaluation should not delay such remedies, including the one before us. Alternatives to institutional controls, such as excavation of soil and cleanup to standards suitable for unrestricted use are feasible, but the preferred alternative, cleanup to industrial standards, is consistent with the intended future use of the property as described in the *Community Reuse Plan* and the *Catellus Mixed Use Development Final Environmental Impact Report* (May 2000, City of Alameda).

A Notice of Determination for a Negative Declaration on a Removal Action Workplan for Marsh Crust at Parcels 170 and 171 at Alameda Point was filed in May 1999. A Notice of Determination for a Negative Declaration on a Remedial Action Plan for Remedial Action Plan for the Marsh Crust and Groundwater at the Fleet and Industrial Supply Center Oakland, Alameda Facility/Alameda Annex and the Marsh Crust and Former Subtidal Area at Alameda Point was filed in February 2001. The current project encompasses a smaller area and applies only to surface soils..

The purpose of this project is solely for remediation of surface soils at IR Site 02 and the implementation of institutional controls to a portion of the property. Any environmental impacts associated with future development are addressed in the Final Environmental Impact Report for the Reuse of Naval Air Station Alameda and the Fleet and Industrial Supply Center, Alameda Annex and Facility (March 2000) and the Catellus Mixed Use Development Final Environmental Impact Report (May 2000).

The FISC Annex is not on the National Priorities List (NPL); consequently, approval is being taken by the Department of Toxic Substances Control (DTSC) under authority provided in Chapter 6.8 of the California Health and Safety Code (H&SC). This Initial Study is being prepared by DTSC pursuant to the requirements of the California Environmental Quality Act (Public Resources Code, Section 21000 et seq) and accompanying Guidelines (Code of California Regulations, Section 15000 et seq).

Agencies Having Jurisdiction Over the Project/ Types of Permits Required: City of Alameda - Execution of the Covenant between the City of Alameda and DTSC is a decision, but does not specifically grant a permit for any action. Rather, it establishes use restrictions on the City as the property owner. The covenant allows DTSC to rely on City zoning ordinances to ensure that the restrictive provisions and intent of the covenant are met with regard to land use. Change in land use requires a zoning amendment, approved by the City council, as long as the zoning ordinance is in effect and is consistent with the provisions of the covenant.

US Navy - The Navy must approve a decision document pursuant to the federal Comprehensive Environmental Response, compensation, and Liability Act (CERCLA) that provides for institutional controls similar to the decision proposed by DTSC.

II. DISCRETIONARY APPROVAL ACTION BEING CONSIDERED BY DTSC

- | | |
|--|--|
| <input type="checkbox"/> Initial Permit Issuance | <input checked="" type="checkbox"/> Remedial Action Plan |
| <input type="checkbox"/> Permit Renewal | <input type="checkbox"/> Removal Action Workplan |
| <input type="checkbox"/> Permit Modification | <input type="checkbox"/> Interim Removal |
| <input type="checkbox"/> Closure Plan | <input type="checkbox"/> Other (Specify) |
| <input type="checkbox"/> Regulations | _____ |

Program/ Region Approving Project: Office of Military Facilities, Site Mitigation Branch, Berkeley Office

Contact Person/ Address/ Phone Number: Mary Rose Cassa/ 700 Heinz Ave., Ste. 200, Berkeley CA 94122/
510-540-3767

III. ENVIRONMENTAL CONDITIONS POTENTIALLY AFFECTED

The boxes checked below identify environmental factors which were found in the following ENVIRONMENTAL SETTING/IMPACT ANALYSIS section to be potentially affected by this project, involving at least one impact that is "Potentially Significant" or "Potentially Significant Unless Mitigated".

- | | | |
|--|--|--|
| <input type="checkbox"/> Earth | <input type="checkbox"/> Risk of Upset | <input type="checkbox"/> Aesthetics |
| <input type="checkbox"/> Air | <input type="checkbox"/> Transportation/ Circulation | <input type="checkbox"/> Cultural/ Paleontological Resources |
| <input type="checkbox"/> Surface and Groundwater | <input type="checkbox"/> Public Services | <input type="checkbox"/> Cumulative Effects |
| <input type="checkbox"/> Plant Life | <input type="checkbox"/> Energy | <input type="checkbox"/> Population |
| <input type="checkbox"/> Animal Life | <input type="checkbox"/> Utilities | <input type="checkbox"/> Housing |
| <input type="checkbox"/> Land Use | <input type="checkbox"/> Noise | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Natural Resources | <input type="checkbox"/> Public Health and Safety | <input checked="" type="checkbox"/> None identified |

IV. ENVIRONMENTAL SETTING/ IMPACT ANALYSIS

The following pages provide a brief description of the physical environmental conditions which exist within the area affected by the proposed project and an analysis of whether or not those conditions will be potentially impacted by the proposed project. Preparation of the Environmental Setting and Impact Analysis sections follows guidance provided in the DTSC's Workbook For Conducting Initial Studies Under the California Environmental Quality Act (CEQA), May 1994 (Workbook).

Cal/EPA Department of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, California 94710-2721
510-540-3767

This Special Initial Study also contains evidence to support the claim that this project will have absolutely no adverse impact on fish or wildlife or the habitat that on which the fish or wildlife depend pursuant to the provisions of Title 14, CCR § 753.5 (d). Areas of special concern to fish and wildlife are highlighted within the appropriate environmental factor in the following section. A list of references used to support the following discussion and analysis are contained in Attachment A and are referenced within each environmental factor discussed below.

I. Earth (Workbook; page 11)

Description of Environmental Setting:

Alameda Facility/Alameda Annex is located in the San Francisco Bay Region, on Alameda Island, along the south shore of the Oakland Inner Harbor. Surface and near-surface soils at the facility consist of artificial fill emplaced during the historic filling of the tidal marshlands during the late 1800s and early 1900s. The fill material is characterized by sands, clays, and silts dredged from the tidal flats in the region and mixed with material from the Merritt Sand formation. The fill is present to depths ranging from 9 feet below ground surface (bgs) in the northern portion of the facility to 20 feet bgs in the southern portion. The marshland layer underneath the artificial fill material on the facility was observed during investigations as an organic-rich peat and grass layer about 2 to 6 inches thick at depths ranging from 9 to 20 feet bgs. Beneath this layer is the bay mud formation, which occurs throughout the facility at a depth of 10 to 20 feet, and a thickness of 10 to 95 feet. The Merritt Sand formation occurs beneath the bay mud.

Ref: (a) Final Remedial Investigation Report; (c) Final Baseline Human Health Risk Assessment

Analysis of Potential Impacts:

[Analysis must include the following concerns: 1) Changes to any riparian land or wetlands under state or federal jurisdiction?; 2) Changes to soil required to sustain habitat for fish and wildlife?]

This project provides for excavation of approximately 830 cubic yards of contaminated soil, offsite disposal, and backfilling with clean soil. The field work proposed in the RAP will occur after DTSC approval of the detailed design. This work, which will take approximately twelve weeks to complete, will be performed under a health and safety plan prepared in accordance with the California Code of Regulations, Title 7, Section 5192 for protection of workers, and in accordance with DTSC policies and procedures for the protection of the environment and community. The site does not contain or adjoin riparian land, wetlands, or soils required to sustain habitat for fish and wildlife. No effects are anticipated.

Ref: (a) Remedial Action Plan; (b) Design Basis Report; (c) Final Remedial Investigation Report

Findings:

Potentially Significant Impact	Potentially Significant Unless Mitigated	Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2. Air (Workbook; page 13)

Description of Environmental Setting:

a) Region

The San Francisco Bay Region experiences one of the mildest climates in North America. Winters are characterized by prevailing cool winds from the northwest moderated by the Pacific Ocean, so temperatures rarely reach freezing. The Bay Area is a large shallow air basin ringed by hills which taper into a number of sheltered valleys around the perimeter. Two primary atmospheric outlets exist. One is through the strait known as the Golden Gate, which is a direct outlet to the ocean. The second extends to the northeast, along the west delta region of the Sacramento and San Joaquin Rivers.

b) Project Site Vicinity

The project site is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), which regulates air quality in the San Francisco Bay Area. The BAAQMD's Bay Area Clean Air Plans (CAPs) contain district-wide control measures to reduce carbon monoxide and ozone precursor emissions. The State standards for these pollutants are more stringent than the national standards. There is currently no activity at the site generating either mobile or stationary air emissions. The site is vacant.

Ref: *Catellus Mixed Use Development Final Environmental Impact Report*, May 2000, City of Alameda

Analysis of Potential Impacts:

[Analysis must address the following concerns: Degradation of any air resources which will individually or cumulatively result in a loss of biological diversity among the plants and animals residing in that air?]

Tetra Tech has conducted an analysis of potential air pollution caused by this remedial action. Toxic air emissions will be kept below the BAAQMD Regulation 2-1-316 trigger level of .007 lbs of PCBs per year that would require an Air Permit by keeping the soil moisture at 10% or greater. This is assuming the worst possible case that 10,000 cubic yards of soil is excavated. A permit for emissions of volatile organic compounds (Regulation 8-40 rules) will not be required because none of the contaminants are sufficiently volatile. The remedial action will follow the BAAQMD CEQA Guidelines from Assessing the Air Quality Impacts of Projects and Plans, "Table 2, Feasible Control Measures for Construction Emissions of PM10" as follows: a) water all active construction areas at least twice daily; b) cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard; c) pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas; and d) sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public roadways.

Ref: (a) Remedial Action Plan; (b) Bay Area Air Quality Management District

Cal/EPA Department of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, California 94710-2721
510-540-3767

Findings:

<i>Potentially Significant Impact</i>	<i>Potentially Significant Unless Mitigated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3. Surface and Ground Water (Workbook; page 17)

Description of Environmental Setting:

Based on available data, shallow groundwater at Site IR02 occurs at depths of 4 to 6 feet below ground surface (bgs), and extends to a maximum depth of approximately 20 feet bgs in fill material and Bay Mud. The shallowest groundwater zone is currently not usable for drinking water because of the presence of naturally occurring inorganic constituents (total dissolved solids and some metals). The Alameda aquifer occurs below the site at a depth ranging from 100 to 2000 feet below the ground surface. The hydrogeology at the project site is characterized by five hydrostratigraphic units that include the water-bearing Merritt Sand and Posey formations (which underlie the fill), Bay Mud formation, and the deeper Alameda formation. The Alameda formation aquifer is separated by a silty-clay unit, the San Antonio Formation. Because of its high silty-clay content, the Bay Mud formation likely provides hydrologic separation of the fill from the underlying Merritt Sand and Posey formations. Tidal influence has been detected close to the existing shoreline, but little or no tidal influence is anticipated at the project site, located at least 0.4 mile from the nearest shoreline. Surface runoff from the project site is largely controlled by a storm drain system which mainly discharges into San Francisco Bay. A jurisdictional wetland of the United States has been delineated by the U.S. Army Corps of Engineers in a drainage ditch running alongside Main Street, approximately 2000 feet west of the FISC Annex.

Ref: (a) Remedial Action Plan; (b) Final Remedial Investigation Report, Fleet and Industrial Supply Center

Analysis of Potential Impacts:

[The analysis must address the following concerns: 1) Changes to riparian land, rivers, streams, watercourses and wetlands under state and federal jurisdiction?; or 2) Changes to any water resources which will individually or cumulatively result in a loss of biological diversity among the plants and animals residing in that water?]

The RWQCB has characterized the shallow groundwater at the Alameda Facility/Alameda Annex as having only limited beneficial uses, and is not used as drinking water because of high total dissolved solids (TDS) content. All excavation will be limited to the top 1 foot of soil, confined to the unsaturated zone. The project will not affect the shallow groundwater zone or any of the deeper aquifers. DTSC has determined that no changes to riparian land, rivers, streams, watercourses or wetlands would result from the proposed action. No effects on water resources are anticipated to take place as a result of this action.

Ref: Remedial Action Plan

Findings:

Potentially Significant Impact	Potentially Significant Unless Mitigated	Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4. Plant Life (Workbook; page 20)

Description of Environmental Setting:

The project site is largely an unpaved, former industrial screening lot and scrap yard. Vegetation at the site consists of weeds growing in areas where the surface soil has been disturbed. Nearby areas consist of paved roadways, commercial/industrial and residential structures, landscaped areas, and significant wildlife habitat at the shoreline. Vegetation near the project area consists of lawn grass surrounding the individual buildings and various ornamental trees and shrubs, including acacia (*Acacia* sp.), eucalyptus (*Eucalyptus* sp.), and bottle brush (*Callistemon citrinus*). Numerous Monterey pine (*Pinus radiata*) and California buckeye (*Aesculus californica*) exist near the site. No coast live oaks (*Quercus agrifolia*) exist on or near the project site.

Ref: (a) Catellus Mixed Use Project Final EIR; (b) EIR for the Reuse of NAS Alameda and FISC Alameda Annex/Alameda Facility

Analysis of Potential Impacts:

[The analysis must address the following concerns: 1) Any adverse effect to native and non-native plant life?; 2) Effects to rare and unique plant life and ecological communities dependent on plant life?; 3) Any adverse effect to listed threatened and endangered plants?; 4) Effects on habitat in which listed threatened and endangered plants are believed to reside?; 5) Effects on species of plants listed as protected or identified for special management in the Fish and Game Code, the Public Resources Code, the Water Code, or regulations adopted thereunder?; or 6) Effects on marine and terrestrial plant species subject to the jurisdiction of the Department of Fish and Game and the ecological communities in which they reside?]

The excavation should only involve a small portion of the existing surface, and impacts will be minimal. DTSC has determined that implementation of the proposed remedy will not result in disruption of either vegetated areas or wildlife habitat; therefore no impacts to vegetation are anticipated.

Ref: Remedial Action Plan

Findings:

Potentially Significant Impact	Potentially Significant Unless Mitigated	Potentially Significant Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. Animal Life (Workbook; page 22)

Description of Environmental Setting:

The project site is largely a paved, former industrial screening lot and scrap yard. Nearby areas include paved roadways, residential structures, landscaped areas, and significant wildlife habitat at the shoreline. Grassy areas provide nesting sites and foraging areas for a variety of wildlife, including northern harriers (*Circus cyaneus*), killdeer (*Charadrius vociferous*), red-tailed hawks (*Buteo jamaicensis*), peregrine falcons (*Falco peregrinus*), black-tailed hares (*Lepus californicus*), and California ground squirrels (*Spermophilus beecheyi*). Wetland areas support waterfowl, shorebirds, terns, gulls, swallows, and house mice (no salt marsh harvest mice were observed during a 1995 survey by the Navy). Eelgrass beds in the shallow water of San Francisco Bay and the Oakland Inner Harbor provide important foraging habitat for shorebirds and water fowl and a nursery for various fish and invertebrates. Rock breakwaters and riprap areas provide roosting, nesting, and foraging areas for water birds, including the California brown pelican, and provide a haul-out site for harbor seals. A colony of California least terns nests on the paved airfield at the former Alameda Naval Air Station. Landscaped and developed areas are used primarily by typical urban wildlife such as scrub jays (*Aphelocoma coerulescens*), red-winged blackbirds, sparrows, house finches (*Carpodacus mexicanus*), American robins (*Turdus migratorius*), California ground squirrels, and feral cats. Bats have used buildings at Alameda Point and the FISC Annex for shelter, resting, and foraging.

Ref: EIR for the Reuse of NAS Alameda and FISC Alameda Annex/Alameda Facility

Analysis of Potential Impacts:

[The analysis must address the following concerns: 1) Effects on listed threatened or endangered animals?; 2) Effects on habitat in which listed threatened and endangered animals are believed to reside?; 3) Effects on species of animals listed as protected or identified for special management in the Fish and Game Code, the Public Resources Code, the Water Code, or regulations adopted thereunder?; or 4) Effects on marine and terrestrial animal species subject to the jurisdiction of the Department of Fish and Game and the ecological communities in which they reside?]

DTSC has determined that implementation of the proposed remedy will not result in disruption of wildlife habitat. No habitat will be disturbed or removed. There will be no effect on the California least tern or its habitat.

Ref: Remedial Action Plan

Findings:

Potentially Significant Impact	Potentially Significant Unless Mitigated	Potentially Significant Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

6. Land Use (Workbook; page 24)

Description of Environmental Setting:

The general pattern of existing land use at the FISC Annex and the adjacent former Alameda NAS reflects the historic military use of the property. The FISC Annex is comprised mainly of warehouse buildings served by an extensive road system. The adjacent portion of the former Alameda NAS is intensely developed, with an extensive road system serving the many administrative and industrial buildings, warehouses, barracks and family housing units, community support buildings, and a large vessel marine port. Surrounding land uses are: Coast Guard family housing to the west; the remainder of the City of Alameda to the east and south; and the Port of Oakland across the Oakland Inner Harbor to the north. Adjacent land uses to the east and south include residential, community (churches, parks, schools), educational, commercial, and industrial.

Ref: EIR for the Reuse of NAS Alameda and FISC Alameda Annex/Alameda Facility

Analysis of Potential Impacts:

The project as proposed will not alter proposed or existing land use. The preferred alternative, cleanup to industrial standards, is consistent with the intended future use of the property as described in the *Community Reuse Plan* and the *Catellus Mixed Use Development Final Environmental Impact Report* (May 2000, City of Alameda).

The preliminary remedial design estimates that after additional testing of surface soil to delineate the areas of soil contamination at IR02, approximately 830 cubic yards of soil will be excavated. The contamination is believed to only be on the surface, and it should not be necessary to excavate deeper than 6 inches. However, if PCB or cadmium soil is found to be deeper, excavation will continue until it is removed. All excavated areas will be backfilled with clean soil, which will be compacted to 90 percent maximum density and brought back up to the level of the original grade so as to not change current drainage patterns.

Part of the proposed remedy is a covenant to restrict specific use of the property (environmental restrictions), between the City of Alameda as the owner of the property, and the Department of Toxic Substances Control. The restriction involves controls on use of the western 2/3 of the site and prohibits residential use of that portion of the site. Controls are already in place on excavation and management of soil excavated from the subsurface marsh crust layer and brought to the surface through construction or other activities and on extraction of groundwater.

Pursuant to California Civil Code section 1471(c), DTSC has determined that the covenant on the eastern 2/3 of the site is reasonably necessary to protect present or future public health and safety or the environment. DTSC therefore intends that land use on the eastern 2/3 of the site be restricted. The restrictions shall run with the land, pass with each and every portion of the property, and be enforceable by DTSC. The restrictions shall be incorporated by reference in each and all deeds, leases and subleases of any portion of the property. This restriction is not intended, nor is it likely to restrict, induce, or otherwise affect general land uses, but rather

applies to the eastern 2/3 or Site IR02 at the FISC Annex irrespective of any and all future land uses.

DTSC has determined that implementation of the proposed remedy will not impact the existing or surrounding land uses or policies. The property is currently mixed use, and is proposed to remain so. Cleanup goals under the proposed remedy are consistent with residential use for the western 1/3 of Site IR02 and commercial/industrial use for the eastern 2/3 or Site IR02.

Ref: (a) Remedial Action Plan; (b) Design Basis Report

Findings:

<i>Potentially Significant Impact</i>	<i>Potentially Significant Unless Mitigated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

7. Natural Resources (Workbook; page 25)

Description of Environmental Setting:

The FISC Annex and adjacent former Alameda NAS are largely urbanized, consisting of commercial/industrial buildings, paved and landscaped areas, and single- and multi-family residential units. The site was formerly marshland/tidal flats, and was filled in the early 1900's in a series of fill events using dredge spoils predominately from the Oakland Estuary.

Ref: EIR for the Reuse of NAS Alameda and FISC Alameda Annex/Alameda Facility

Analysis of Potential Impacts:

Site IR02 will be restored to its current condition following implementation of the remedy. No physical changes to the site or nearby areas will result from the adoption of the proposed institutional controls as part of the remedy. DTSC has determined that the proposed remedy will not contribute to any significant depletion of natural resources.

Ref: Remedial Action Plan

Findings:

Potentially Significant Impact	Potentially Significant Unless Mitigated	Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

8. Risk of Upset (Workbook; page 26)

Description of Environmental Setting:

The FISC Annex and Alameda Point are largely urbanized, consisting of commercial/industrial buildings, paved and landscaped areas, and single- and multi-family residential units. The site is mostly unpaved, but the unpaved areas are mostly compacted soil with very little vegetation.

Upset conditions include not only events associated with natural disasters and associated unforeseen emergencies such as fire, but those events more commonly called accidents, such as those caused by human error, equipment malfunction or failure, and sabotage.

Ref: (a) EIR for the Reuse of NAS Alameda and FISC Alameda Annex/Alameda Facility; (b) Environmental Baseline Survey

Analysis of Potential Impacts:

The remedial action will be designed to minimize or eliminate impacts that could result from unforeseen accidents, equipment malfunction, etc.

Pollution prevention results from the fact that the remedial technology is simple excavation and off site disposal and does not involve treatment. No additional chemicals will be used, and no treatment will be wastes generated, except for wastewater from washing of vehicles that may have contacted contaminated soil prior to leaving the site. To prevent release of wash water, all vehicle washing will be conducted within a waterproof containment area to be constructed for this purpose. Wash water will be collected and stored in tanks on site for disposal after it has been analyzed to determine proper disposal requirements.

Access restrictions will be provided in the form of permanent fencing around the entire site.

The remedial action will not involve the use of any structures subject to fire. Portable fire extinguishers will be kept on site, and the city fire department will be summoned if necessary.

In the event of upset due to storm, fire, loss of power supply, human error, equipment malfunction, the risk of release or exposure to humans or the environment will not increase. During such an upset, excavation operations will simply be suspended until the situation can be corrected. This will not interfere with existing health and safety plans in the event of an emergency. Emergency power supplies will not be necessary since the safety of the action does not rely on access to power.

During the period of active remediation, dust will be controlled by the application of water to any soil being excavated, loaded, or driven over by vehicle traffic. The potential of air pollution due to potential emissions of PCBs adhering to dust particles has been evaluated as required by the Bay Area Air Quality Management District Regulation 8, rule 40. To address this regulation, moisture content will be controlled to 10 % or greater

in any such soil by periodic water spraying of the soil which will keep potential release of air toxics within allowable limits. Water will be supplied via existing fire hydrants at the site. In the event of failure of the on site fire hydrants, water will be obtained by tanker truck from an off site source, or operations will be suspended until the water supply can be restored. Vehicles will enter and leave the site via paved roads. Any vehicle that may have driven on contaminated soil while on site will be washed in the vehicle washing containment area before leaving the site.

Appropriate placarding of trucks carrying contaminated soil to the permitted offsite landfill will ensure proper procedures are followed in the event of an accident that results in spillage. These procedures are designed to protect the community and the environment.

The simplicity of this action makes it inherently resistant to upset. The project is not anticipated to increase risk of release of hazardous substances in the event of accident or upset condition (potential risk to human health or the environment); jeopardize the implementation of existing emergency response plans or health and safety plans or interfere with response efforts in the event of an emergency situation; create new or different hazards requiring specialized response equipment or mitigation measures to reduce or prevent the hazard from occurring; or expose the public or surrounding environment to unquantified, unknown, or uncontrollable levels of hazardous substances in the course of carrying out the project.

Ref: (a) Remedial Action Plan; (b) Design Basis Report

Findings:

<i>Potentially Significant Impact</i>	<i>Potentially Significant Unless Mitigated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

9. Transportation/Circulation (Workbook; page 29)

Description of Environmental Setting:

Local access to the FISC Annex is via Webster Street and Mariner Loop. Secondary access is via Atlantic Avenue and Main Street. Transit service consists mainly of AC Transit busses. Sidewalks exist along Webster Street, Mariner Loop, Main Street and Atlantic Avenue and in the adjacent Coast Guard Housing complex.. Bikeways have been developed along main Street and Atlantic Avenue. Buildings at the FISC Annex and former Alameda NAS are being leased. Commercial occupancy rates are relatively low; however residential occupancy at the adjacent Coast Guard Housing complex is high.

Ref: (a) EIR for the Reuse of NAS Alameda and FISC Alameda Annex/Alameda Facility

Analysis of Potential Impacts:

Implementation of the proposed remedy will require transportation of materials or equipment to and from the site, and will impact existing vehicular traffic patterns and air emissions. Parking demand is not expected to be impacted. The project is estimated to require about 25 to 30 trucks per day, traveling the following route: exit the Main Gate at Mariner Square Loop. Take Webster Road north through the Posey Tunnel; I-880 south to I-580 east; I-205 east to I-5 north; CA-120 east to CA-99 south. Exit at Austin Road; turn left onto Moffat Boulevard; turn left onto Austin Road. Impacts to traffic and circulation in the vicinity of the project site will be negligible because of the site's close proximity to the interstate.

Ref: Remedial Action Plan

Findings:

Potentially Significant Impact	Potentially Significant Unless Mitigated	Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

10. Public Services (Workbook; page 31)

Description of Environmental Setting:

The FISC Annex falls under the jurisdiction of the City of Alameda Police Department which assumed law enforcement responsibility from the Navy on April 30, 1997. The City of Alameda Police Station is located at 1555 Oak Street, roughly 3 miles east of the intersection of Main Street and Atlantic Avenue. Trespassing and vandalism are the main law enforcement problems.

Fire services are provided to the FISC Annex by the Alameda Fire Department. Five fire stations are located throughout the City of Alameda; administrative headquarters are located at 1300 Park Street, and a fire prevention office is located at 950 West Mall Square. Fire Station No. 2 is located at 635 Pacific Avenue; Fire Station No. 5 Fire Station is located at 950 West Ranger Avenue.

Ref: (a) EIR for the Reuse of NAS Alameda and FISC Alameda Annex/Alameda Facility; (b) Alameda Point Administration, City of Alameda

Analysis of Potential Impacts:

ADD TEXT REGARDING SOIL REMEDY

The proposed institutional control will not require any fire or police services. Zoning ordinances require administration by City personnel.

Ref: (a) Remedial Action Plan; (b) City of Alameda Administration

Findings:

<i>Potentially Significant Impact</i>	<i>Potentially Significant Unless Mitigated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

11. Energy (Workbook; page 32)

Description of Environmental Setting:

Alameda Power and Telecom (AP&T) (formerly the City of Alameda Bureau of Electricity) provides electric power to the FISC Annex. The primary natural gas supply for the western end of Alameda is a 12-inch diameter transmission main that crosses the Estuary from Oakland and runs south along Webster Street. An 8-inch diameter high pressure branch line runs west on Atlantic Avenue. Two 4-inch diameter metered connections off this line feed the existing distribution system for the former Navy housing near FISC Annex Site IR02. The California Public Utility Commission has directed that all out-of-compliance conditions in the former Navy distribution system be corrected. Buildings at the FISC Annex Point are leased, but occupancy rates are low; therefore, energy uses are low.

Ref: City of Alameda Administration

Analysis of Potential Impacts:

The proposed remedial action will mainly involve consumption of diesel fuel for transportation and heavy equipment. Minor amounts of electrical power will be required for site activities. The proposed institutional controls will not require use of any energy or fuel. It is not anticipated that the project will have any significant impact on energy use.

Ref: (a) Remedial Action Plan; (b) City of Alameda Administration

Findings:

<i>Potentially Significant Impact</i>	<i>Potentially Significant Unless Mitigated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

12. Utilities (Workbook; page 32)

Description of Environmental Setting:

Utilities infrastructure for water, wastewater and natural gas and electric exists at the FISC Annex, although it may not meet current code requirements. Telephone service to the FISC Annex is provided by Pacific Bell. Overhead cable TV service exists at the FISC Annex.

Ref: (a) EIR for the Reuse of NAS Alameda and FISC Alameda Annex/Alameda Facility; (b) City of Alameda Administration

Analysis of Potential Impacts:

No additional service from utility providers would be required as a result of the adoption of the proposed remedy; therefore, no significant impact to utilities or related infrastructure is anticipated.

Ref: (a) Remedial Action Plan; (b) City of Alameda Administration

Findings:

Potentially Significant Impact	Potentially Significant Unless Mitigated	Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

13. Noise (Workbook; page 32)

Description of Environmental Setting:

The FISC Annex is largely urbanized, consisting of commercial/industrial buildings and paved areas. Buildings at the FISC Annex are leased, but occupancy rates are low. Property adjacent to Site IR02 includes and multi-family residential units and a college campus.

Ref: (a) EIR for the Reuse of NAS Alameda and FISC Alameda Annex/Alameda Facility; (b) Environmental Baseline Survey

Analysis of Potential Impacts:

The proposed remedy will generate noise from heavy equipment and trucks (engine noises and backup-indicators). Work hours will be 6:00 a.m. to 4:00 p.m., Monday through Friday. Site workers will wear hearing protection as required by CalOSHA and as described in the site health and safety plan. The exclusion area will prevent persons not working at the site from coming into close proximity to noise sources. The project site is several hundred feet from the nearest residents; therefore early morning noise is not expected to have negative impacts.

Ref: Remedial Action Plan

Findings:

Potentially Significant Impact	Potentially Significant Unless Mitigated	Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

14. Public Health and Safety (Workbook; page 34)

Description of Environmental Setting:

The FISC Annex is largely urbanized, consisting of commercial/industrial buildings and paved areas. Property adjacent to Site IR02 includes multi-family residential units and a college campus.. Buildings at the FISC Annex are leased, but occupancy rates are low.

PCB and cadmium contamination, mostly confined to the top few inches of soil, was discovered during the RI. A possible source of this contamination is leaks from PCB-containing electrical equipment potentially stored at various locations at the site in the past. It is believed that such contamination may have spread about the largely unpaved site by surface erosion or as a result of redeposition by vehicle tires. Currently, PCB-contaminated soil is known to remain as indicated mainly by soil samples collected in the surface soil. The highest PCB concentrations were detected in samples collected from the top inch of soil. Soil samples contained PCB concentrations as high as 43 milligrams per kilogram (mg/kg), and cadmium concentrations as high as 86 mg/kg.

Human health risk assessments (HHRA), consistent with U. S. EPA and DTSC guidelines for conducting HHRA, were conducted during the remedial investigation and follow-on studies at the FISC Annex (PRC Environmental Management, Inc., 1996; NewFields, 2000). The HHRA determined that future residents and people who work at the could be exposed to contamination and that current workers could be exposed to contamination during construction of building foundations and utility work. The following pathways were evaluated for future residential exposure to soil: inhalation of dust and volatilized contaminants, ingestion, dermal contact, and ingestion of produce. The following pathways were evaluated for current site worker exposure to soil: inhalation of dust and volatilized contaminants, ingestion, and dermal contact. Dermal contact with ponded water was also evaluated for the construction worker scenario. Ground water consumption was not evaluated for the residential or worker scenario because groundwater has been determined by the RWQCB to be nonpotable. The primary pathways of concern are soil ingestion, dermal contact with soil, vegetable ingestion (future resident only) and dermal contact with ponded water (construction worker only). PCBs and cadmium appear to be most highly concentrated in the top few inches of soil where they can easily migrate or expose humans. Cadmium appears to be concentrated in a few hot-spots.

Ref: (a) Remedial Investigation; (b) Environmental Baseline Survey

Analysis of Potential Impacts:

The volume of soil to be excavated was estimated in the FS to be 664 cubic yards (830 cubic yards after applying an expansion factor of 1.25), however the actual amount of soil requiring remediation will depend on the results of additional sampling, and will likely differ from this amount. This estimate assumes that the entire site will be sampled according to square grid system composed of approximately 210 grid sections, each 46 feet on a side. Soil will be excavated from each contaminated grid to a depth of 6 inches. Verification samples will be collected to show that concentrations of PCBs or cadmium remaining below each excavated area are below the cleanup goals. The cleanup goal for total PCBs is 10 mg/kg for the industrial

scenario and 1 mg/kg for unrestricted residential use. The cleanup goal for cadmium is 12 mg/kg for unrestricted residential use. The industrial cleanup level derived in the FS for cadmium is 450 mg/kg, which is well above levels found at the site. Since the location of the original contaminant sources are not known, PCB and cadmium contamination could exist at other areas of the site where no samples have been collected from the top one inch of soil. The design of the sampling grid is intended to ensure these areas will be identified and remediated.

The remedial action for contaminated soil and ponded water is to prevent ingestion of, direct contact with, or inhalation of carcinogenic hazardous substances in soil and ponded water that result in an excess lifetime cancer risk for the residential and industrial scenario above that associated with local background contamination. This remediation will remove risks to human health and the environment by removing soil that is contaminated above the level thought to present an unacceptable risk. The soil will be removed to a secure landfill off site where it will be buried to prevent potential contact by human or ecological receptors.

Pursuant to Assembly Bill 871, which became effective on January 1, 1999, DTSC is required to maintain a list of all land use restrictions recorded pursuant to Health and Safety Code sections 25200, 25200.10, 25202.5, 25222.1, 25229, 25230, 25355.5, and 25398.7. At a minimum, this list must provide the street address, or if a street address is not available, an equivalent description of location for a rural location or the latitude and longitude of each property. DTSC is also required to update the list as new land use restrictions are recorded, and make the list available to the public, upon request, and place the list on the DTSC Internet website.

Ref: (a) Remedial Action Plan; (b) Design Basis Report

Findings:

<i>Potentially Significant Impact</i>	<i>Potentially Significant Unless Mitigated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

15. Aesthetics (Workbook; page 38)

Description of Environmental Setting:

The FISC Annex is largely urbanized, consisting of commercial/industrial buildings and paved areas. Buildings at the FISC Annex are leased, but occupancy rates are low.

Ref: (a) EIR for the Reuse of NAS Alameda and FISC Alameda Annex/Alameda Facility; (b) Environmental Baseline Survey

Analysis of Potential Impacts:

The site will be restored to its current condition following implementation of the remedial action. No impacts to the aesthetics of the site will occur.

Ref: Remedial Action Plan

Findings:

Potentially Significant Impact	Potentially Significant Unless Mitigated	Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

16. Cultural/ Paleontological Resources (Workbook; page 39)

Description of Environmental Setting:

The FISC Annex and surrounding areas are largely urbanized, consisting of commercial/industrial buildings, paved and landscaped areas, single- and multi-family residential units, and a college campus. A number of cultural resources surveys for both historical and archaeological resources have been conducted in the last few years for the environmental documentation for transfer and disposal of the site by the Navy. No resources have been identified on the FISC Annex by these surveys of the site and records searches. Because the FISC Annex consists of fill, no paleontological resources are expected to exist at the facility..

Ref: PAR Environmental Services, Inc. *An Archaeological Evaluation of the Fleet Industrial Supply Center - Alameda Annex/Facility, and US Navy Alameda Family Housing*, June 1996. As cited in City of Alameda, *Catellus Mixed Use Development Draft Environmental Impact Statement*, December 1999.

Analysis of Potential Impacts:

Implementation of the proposed remedy will disrupt the surface soils; however, DTSC has determined that there will be no impact to cultural or paleontological resources as a result of the adoption of the proposed remedial action plan.

Ref: (a) Remedial Action Plan

Findings:

Potentially Significant Impact	Potentially Significant Unless Mitigated	Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

17. Cumulative Effects (Workbook; page 42)

Description of Environmental Setting:

The city of Alameda is implementing a mixed-use development proposal for the FISC Annex and the East Housing portion of the former Alameda NAS.

Ref: (a) Catellus Mixed Use Project Final EIR; (b) EIR for the Reuse of NAS Alameda and FISC Alameda Annex/Alameda Facility

Analysis of Potential Impacts:

The cumulative impact of the adoption of the proposed remedial action plan and the proposed mixed-use development project could result in impacts to human health from exposure to soil and groundwater during excavation of the site in preparation for construction. These potential impacts would be addressed by a covenant which requires approval from DTSC or the City of Alameda for the excavation of soil at the FISC Annex and restricts extraction of ground water at the FISC Annex. The City has enacted an ordinance which requires controls on the management of soil excavated from the subsurface marsh crust layer in order to limit human exposure during construction activity at the FISC Annex.

DTSC has conducted CEQA reviews for past site mitigation-related projects which concluded that impacts associated with those projects were insignificant both from an individual and cumulative perspective. The project analysis in this Initial Study also shows impacts to be insignificant.

DTSC also examined the Draft Environmental Impact Report for the Catellus Mixed Use Development Project that concluded future impacts associated with development of the subject site would also be insignificant when mitigation measures were imposed, including imposition of the mentioned institutional controls which limit human exposure to hazardous waste. As such, DTSC finds that cumulative impacts from this project when viewed against related past and future projects would be insignificant.

Ref: (a) Remedial Action Plan; (b) Catellus Mixed Use Project Draft Environmental Impact Report; (c) City of Alameda Final Environmental Impact Report for the Reuse of Naval Air Station Alameda and the Fleet and Industrial Supply Center, Alameda Annex and Facility; (d) Negative Declaration for IR Sites 15 and 16 Removal Action; (e) Negative Declaration for Radiological Removal Action at IR Sites 1, 2, 5, and 10; (f) Negative Declaration for PCB-Contaminated Soils and Sump Removal at Screening Lot and Scrapyard Area, FISC Annex; (f) Negative Declaration for Remedial Action Plan for the Marsh Crust and Groundwater at the Fleet and Industrial Supply Center Oakland, Alameda Facility/Alameda Annex and for the Marsh Crust and Former Subtidal Area at Alameda Point (DTSC, 2001)

Findings:

<i>Potentially Significant Impact</i>	<i>Potentially Significant Unless Mitigated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

18. Population/Housing/Recreation (Workbook; page 43)

Description of Environmental Setting:

The FISC Annex and surrounding areas are largely urbanized, consisting of commercial/industrial buildings, paved and landscaped areas, multi-family residential units, and a college campus. Site IR02 has been proposed by the City of Alameda for future mixed-use development; however, the proposed remedy would be necessary irrespective of proposed future land use, and therefore does not drive future land use of any particular type.

Ref: (a) Catellus Mixed Use Project Final EIR; (b) Environmental Baseline Survey; (c) EIR for the Reuse of NAS Alameda and FISC Alameda Annex/Alameda Facility

Analysis of Potential Impacts:

The adoption of the proposed remedy would have no effect on population, housing or recreation because the site will be restored to its current condition following completion of the remedial action.

Ref: (a) Remedial Action Plan; (b) Alameda Point Administration, City of Alameda

Findings:

<i>Potentially Significant Impact</i>	<i>Potentially Significant Unless Mitigated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

19. Mandatory Findings of Significance (Workbook; page 44)

	<i>Potentially Significant Impact</i>	<i>Potentially Significant Unless Mitigated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

V. DETERMINATION OF DE MINIMIS

On the basis of this Special Initial Study:

- ☒ I find that there is no evidence before the Department that the proposed project will have a potential for an adverse effect on wildlife resources or the habitat upon which the wildlife depend. A NEGATIVE DECLARATION with a DE MINIMIS IMPACT FINDING will be prepared.

VI. DETERMINATION OF SIGNIFICANT EFFECT

On the basis of this Initial Study:

- ☒ I find that the proposed project COULD NOT have a significant effect on the environment. A NEGATIVE DECLARATION will be prepared.
- ☐ I find that although the proposed project COULD HAVE a significant effect on the environment, mitigation measures have been added to the project which would reduce these effects to less than significant levels. A NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project COULD HAVE a significant effect on the environment. An ENVIRONMENTAL IMPACT REPORT will be prepared.

MARY ROSE CASSA, R.G.
Name of Preparer

HAZARDOUS SUBSTANCES ENGINEERING GEOLOGIST
Title

Mary Rose Cassa
Signature of Preparer

3/22/01
Date

ATTACHMENT A

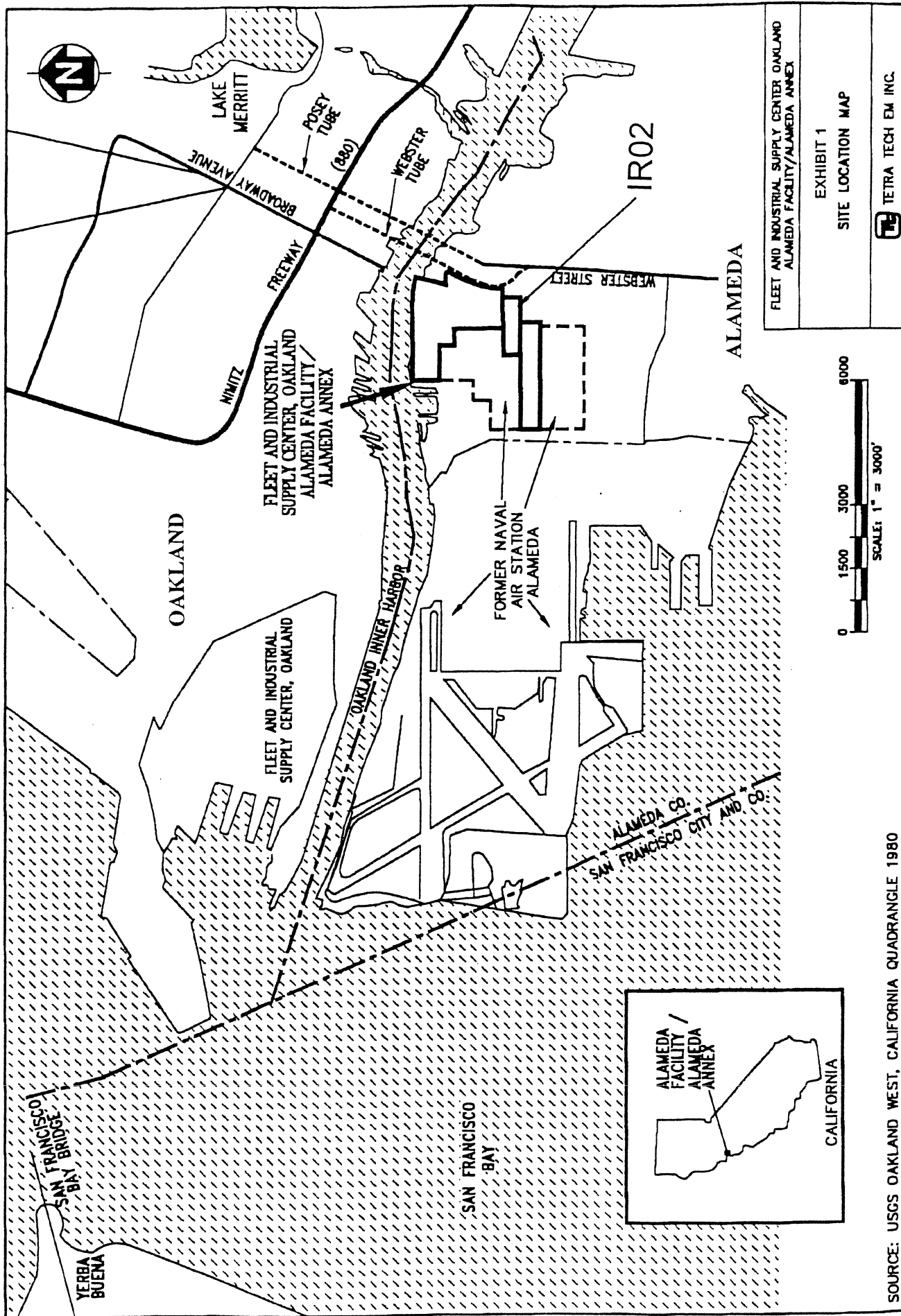
SPECIAL
INITIAL STUDY
REFERENCE LIST

for

Installation Restoration Site 2 Remedial Action Plan,
Fleet and Industrial Supply Center Oakland Alameda Facility/Alameda Annex

1. Tetra Tech EM Inc., January 22, 1999, Final Feasibility Study for Soil at SWMU 1 [Site IR02].
2. Tetra Tech EM Inc., March 2001, Draft Remedial Action Plan/Proposed Plan . . .
3. *Catellus Mixed Use Development Final Environmental Impact Report*, May 2000, City of Alameda
4. PAR Environmental Services, Inc.: An archaeological Evaluation of the Fleet Industrial Supply Center - Alameda Annex/Facility, and US Navy Alameda Family Housing, June 1996. As cited in City of Alameda, *Catellus Mixed Use Development Final Environmental Impact Statement*, May 2000.
5. U.S. Naval Facilities Engineering Command, 1988, Master Plan for Navy Supply Center Oakland, CA
6. *Removal Action Workplan for Marsh Crust at the East Housing Area, Alameda Point, Alameda, California*, March, 2000, Department of Toxic Substances Control
7. IT Corporation, 1999a. *Environmental Baseline Survey Comprehensive Guide: History of NAS Alameda and Alameda Point* (March, 1999)
8. PRC Environmental Management, Inc., 1996. *Basewide Environmental Baseline Survey Report, Fleet and Industrial Supply Center, Oakland, Alameda Facility/Alameda Annex* (December, 1996).
9. PRC Environmental Management, Inc., 1996. *Final Remedial Investigation Report, Fleet and Industrial Supply Center, Oakland Alameda Facility/Alameda Annex Site, Alameda, California* (January, 1996)
10. NewFields, 2000. *Baseline Human Health Risk Assessment, FISCO Alameda Facility/Annex Site* (January, 2000).
11. *Final Environmental Impact Report for the Reuse of Naval Air Station Alameda and the Fleet and Industrial Supply Center, Alameda Annex and Facility*, March 2000, City of Alameda
12. Tetra Tech EM Inc., 2000. Design Basis Report - Removal of Contaminated Surface Soil at IR Site 02 (March 2000)
13. Negative Declaration for IR Sites 15 and 16 Removal Action (DTSC, 1997)

14. Negative Declaration for Radiological Removal Action at IR Sites 1, 2, 5, and 10 (DTSC, 1998)
15. Negative Declaration for PCB-Contaminated Soils and Sump Removal at Screening Lot and Scrapyard Area, Fleet and Industrial Supply Center Oakland Alameda Facility/Alameda Annex (DTSC, 1997)
16. Negative Declaration for Removal Action Workplan for Marsh Crust at the East Housing Area, Alameda Point, Alameda, California, (DTSC, 1999)
17. Negative Declaration for Remedial Action Plan for the Marsh Crust and Groundwater at the Fleet and Industrial Supply Center Oakland, Alameda Facility/Alameda Annex and for the Marsh Crust and Former Subtidal Area at Alameda Point (DTSC, 2001)

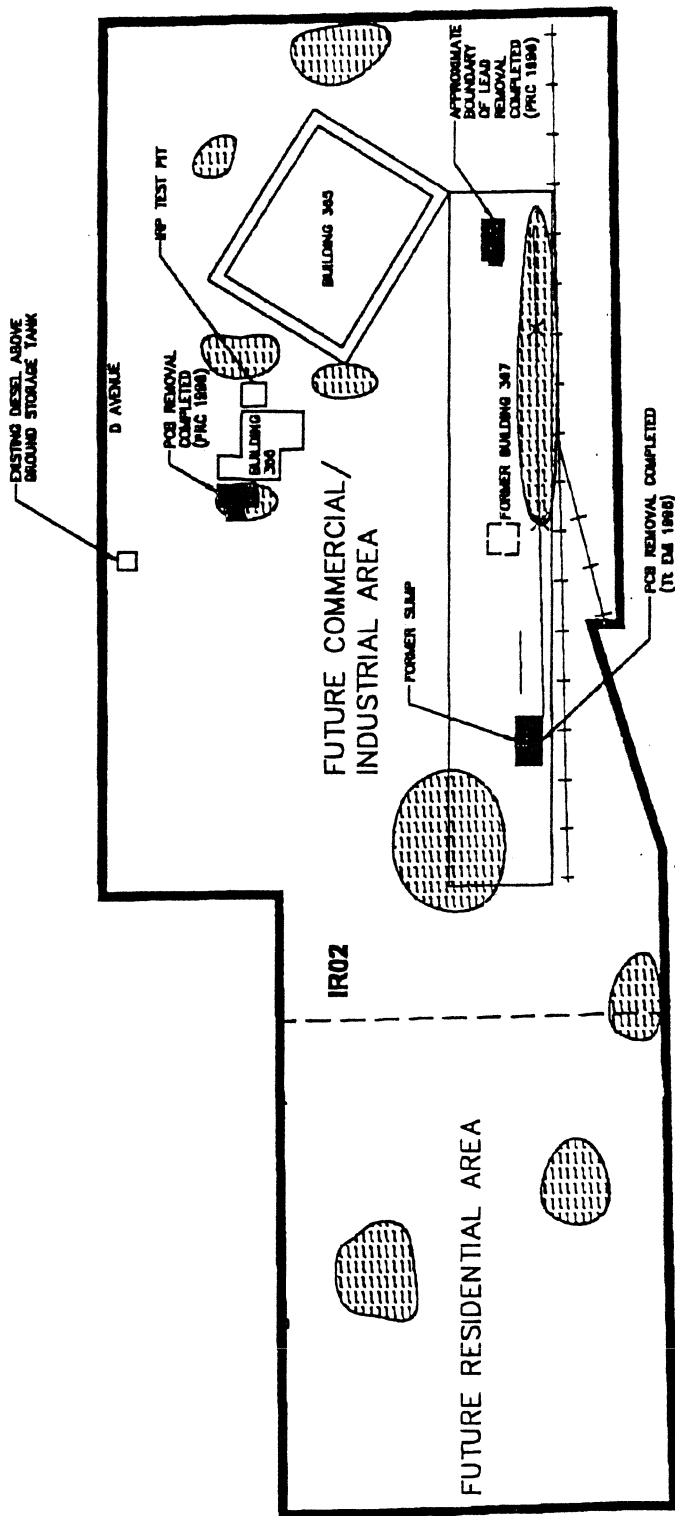


FLEET AND INDUSTRIAL SUPPLY CENTER OAKLAND
ALAMEDA FACILITY/ALAMEDA ANNEX









EXHIBIT 1
SITE LOCATION MAP

TETRA TECH EM INC.

SOURCE: USGS OAKLAND WEST, CALIFORNIA QUADRANGLE 1980



LEGEND

-  PCB or Lead Removal Completed
-  PCB
-  SI Site Inspection
-  IRP Installation Restoration Program
-  Temporary Poned Water Area
-  Railroad Tracks
-  Fence
-  Screening Lot and Scrapyard Area

FISCO ALAMEDA FACILITY / ALAMEDA ANNEX
ALAMEDA, CALIFORNIA

EXHIBIT 2

POTENTIAL AREAS OF CONTAMINATION—
PONDED AREAS

TETRA TECH EM INC.

APPENDIX C
RESPONSIVENESS SUMMARY
(7 Pages)

**RESPONSE TO PUBLIC COMMENTS ON THE DRAFT
RECORD OF DECISION/REMEDIAL ACTION PLAN AND PROPOSED PLAN
FOR IR02
AT THE ALAMEDA FACILITY/ALAMEDA ANNEX
ALAMEDA CALIFORNIA**

This document presents the Navy's responses to comments on the draft Record of Decision/Remedial Action Plan (RAD/ROP) and Proposed Plan for IR02 at Alameda Facility/Alameda Annex.

In preparing this responsiveness summary, the Navy followed "A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Documents," (OSWER Directive 9200.1-23P, July 1999). The responsiveness summary summarizes the views of the public and support agencies and documents in the record how public comments were integrated into the remedial decision. The guidance suggests that the responsiveness summary be organized into two sections:

"Stakeholder Issues and Lead Agency Responses: summarize and respond concisely to major issues raised by stakeholders (for example, community groups, support agencies, businesses, municipalities, and potentially responsible parties [PRPs]).

"Technical and Legal Issues, if necessary." (EPA 1999)

Based on the comments received from citizens and support agencies during the public comment period, there are no outstanding technical or legal issues for this RAP/ROD. Therefore, only the Stakeholder Issues and Lead Agency Responses section is included in this responsiveness summary. The guidance recommends, "If the lead agency determines that a point-by-point response to a set of comments is warranted, a separate comment/response document should be prepared." The Navy has concluded that a point-by-point response is not warranted and has responded in this responsiveness summary to all comments submitted. Most comments and the responses are summarized by topic. Comments that pertain to a unique topic are presented verbatim.

- 1. Comment:** This commenter questioned why a proposed school site was not mentioned in the proposed plan or draft RAP/ROD and raised concerns that environmental impacts to a school have not been considered.

Commenter: Alameda Unified School District, Alameda, California

Response: Future land use plans for IR02 do not include a school site so environmental impacts to a school were not considered in the proposed plan. The Catellus development plan for property adjacent to IR02 does propose a school, however these plans are still only conceptual and the exact location for a school has not been finalized. Based on discussions about proposed locations for the school, it is not anticipated that residual contamination at IR02 will have any impact on a nearby school site.

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2. **Comment:** One commenter was concerned that the proposed plan does not address off-site stormwater migration of cadmium, PCBs and PAHs. The commenter also raised concerns about potential impacts to the proposed school site.

Commenter: Arc Ecology, San Francisco, CA

Response: Off-site migration of contaminants via the storm drain system runoff was determined not to create an unacceptable risk at IR02. Nevertheless, the proposed plan for IR02 will eliminate any migration via the stormwater runoff pathway because surface and near-surface contaminants will be excavated and removed from the site. During implementation of the action, best management practices will be used to prevent runoff to the storm drain system and over the land, and clean fill will be used to cover the surface after the contaminants are removed. As discussed in response to Comment 1, the exact location of the proposed school is unknown at this time. Potential migration of residual contamination via the storm drain system, if any, would be northward toward Oakland Inner Harbor, and away from any proposed school site. The final configuration of the remedial action for IR02 will not change this pattern.

3. **Comment:** A representative of the East Bay Municipal Utility District (EBMUD) submitted one comment verbally during the public meeting held on April 19, 2001. EBMUD is the local water utility for the City of Alameda. The comment given at the meeting was later incorporated with other comments in a May 2, 2001 letter from EBMUD. The letter raised three main concerns. First, EBMUD expressed concern that soil sampling and subsequent cleanup levels would not provide protection of utility workers responsible for installing water service to the property in the future. Second, the commenter was concerned that the proposed plan did not address all contaminants present at the site, particularly polycyclic aromatic hydrocarbons (PAHs) and that additional remedial action may be needed. Finally, EBMUD felt the public participation process suffered because of the short comment period and the lack of attendance at the public meeting.

Commenter: East Bay Municipal Utility District

Response: The cleanup levels chosen for soil on the western portion of IR02 (1 mg/kg for PCB, 12 mg/kg for cadmium) will be consistent with unrestricted use, including installation of utilities. Following the public comment period, the cleanup level for PCBs on the eastern two-thirds of the property has been revised to 10 mg/kg (the cadmium level has not been revised) and is based on an exposure model that assumes continuous exposure, 24 hours per day, 7 days per week, 365 days per year. This scenario is much more conservative than the lower expected frequency of exposure by typical utility workers. This lower exposure is even more conservative when accounting for the standard worker protection that is required by the Occupational Safety and Health Act (OSHA). The contaminants of concern, PCBs and cadmium, are generally located in the top 0 to 2 feet of soil at the site and have not been found at depth at the site. The maximum detection of cadmium to date is 86.4 mg/kg as reported in the 1996 RI (page 5-

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14). Pre-excavation sampling will be used to more precisely define the extent of the contaminated soil requiring remediation; contamination exceeding cleanup levels found at depth will be excavated.

The proposed plan stated that this is the final action for contaminated soil on the western one-third of the property because the cleanup levels allow for unrestricted (residential) use. PAHs are included in that statement because they did not create unacceptable risks on that portion of the property. The proposed plan did not make this same claim for the eastern two-thirds of the property because additional sampling was needed. The pre-excavation sampling is expected to provide the data needed to determine whether additional remediation of PAHs will be necessary. The radionuclides mentioned by the commenter occurred at the site in the form of three pallets of bricks and three small canisters of approximately 25 to 30 gallons each. The canisters were labeled as containing depleted uranium. The Navy moved the items off site to a secure radioactive storage area at the Fleet and Industrial Supply Center Oakland. From there, the items were disposed of by the Navy's low-level waste agent, NAVSEA Detachment Radiological Affairs Support Office at the authorized disposal site in Barnwell, South Carolina. There were no other contaminants of concern identified at the site.

With regard to EBMUD's concerns about the public comment process, the Navy, the Department of Toxic Substances Control (DTSC) and representatives of the City of Alameda collaborated to provide as many opportunities for public involvement in this decision as possible. All regulatory requirements for public notice were met and additional steps were taken to elicit input from the community. The limited turnout and response noted by EBMUD is typical for these types of activities in the City of Alameda.

4. **Comment: The Alameda Point Collaborative (APC) submitted two general comments and three specific comments regarding the risk assessment, cleanup levels, land use controls and the five-year review.**

Commenter: Alameda Point Collaborative

General Comment 1: The APC was concerned that the risk assessment did not consider growing and ingestion of home produce in the residential area and that land use controls will prohibit the activity.

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Response: The risk assessment for IR02 did consider the growing and ingestion of homegrown produce when estimating site risks. As a result, residential cleanup levels were chosen for the western one-third of IR02 which will be developed for residential uses. The cleanup levels will allow for unrestricted use of the property and no prohibitions on growing produce will be necessary.

General Comment 2: The APC stated that the cleanup levels are not protective when considering the soil and groundwater risk factors in combination.

Response: Groundwater contamination has not yet been addressed at the Alameda Facility/Alameda Annex although the remedial investigation/feasibility study (RI/FS) process is underway. Therefore, no cleanup levels for groundwater have been set. However, the soil cleanup levels in the proposed plan must be protective of both human health and the environment which means that the soil cleanup levels must mitigate any threat that the residual concentrations in the soil contribute to ongoing groundwater contamination. When groundwater is ultimately addressed, cleanup levels will be set to be protective for all exposure pathways that create unacceptable risk. For example, extraction and use of groundwater may be prohibited to ensure that cumulative risk associated with soil and groundwater exposures do not exceed acceptable levels. The final determination for groundwater will involve cumulative risk for all media for which groundwater exposure pathways exist.

Specific comment 1: The APC expressed concern that benzene contamination in the groundwater was not adequately addressed in the draft RAP/ROD.

Response: As stated above, benzene contamination in the groundwater is still under investigation and is specifically excluded from the scope of the proposed plan. Because of existing well construction restrictions, the shallow groundwater at IR02 is not, and will not be, used for drinking water. To date, two phases of sampling have shown that benzene in the groundwater is not likely to create unacceptable risks for residents via inhalation. Additional data to be collected this summer is expected to resolve this issue. Nevertheless, the interim restrictions on IR02 will not be lifted until the data is evaluated, precluding any unacceptable exposure to contaminated groundwater.

Specific comment 2: The APC is concerned about land use restrictions selected in the draft RAP/ROD and how they would impact the residential portion.

Response: Land use restrictions will be placed only on the eastern two thirds of the property and will not impact the planned residential development of the western one third.

Specific comment 3: The APC said the draft RAP/ROD was not clear regarding the application of the five-year review to the two portions of the property.

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Response: A five-year review is required when the selected remedial action results in residual contaminants remaining at the site to assure that human health and the environment are being protected. Because the land use restrictions on the eastern two-thirds of IR02 are meant to prevent certain types of exposure to contaminants left on-site, the five-year review will only apply to the eastern two thirds of the property. Soil contamination will be removed from the western one-third to allow for unrestricted use and the effectiveness of the remedy will be confirmed via sampling. Five-year review for the western portion is unnecessary.

5. **Comment: One commenter submitted eight specific comments regarding technical and procedural issues in the draft RAP/ROD.**

Commenter: Clearwater Revival Company

Specific comment 1: The commenter asked for clarification of the RCRA status of IR02.

Response: Although a permitted RCRA storage facility was operated on the Annex in the past, IR02 was not part of that facility. The IR02 RI did evaluate a full suite of hazardous substances, pollutants or contaminants and all chemicals that created unacceptable risks have been identified and either addressed in this RAP/ROD or will be addressed in other decision documents. Furthermore, IR02 could be considered a solid waste management unit (SWMU) subject to corrective action pursuant to the Resource Conservation and Recovery Act (RCRA). DTSC has concluded that the remedy pursuant to CERCLA and Chapter 6.8 of the California Health and Safety Code is consistent with RCRA corrective action.

Specific comment 2: The commenter questioned the relevance of seemingly “old” investigation data to the current site conditions.

Response: Since the RI, there have been no activities on IR02 that would have resulted in additional contamination or that would have invalidated the RI data. Because there are no new sources, it's unlikely that conditions have worsened at the site which is fenced and undisturbed. Nevertheless, additional sampling to be conducted prior to excavation will provide additional high-quality data and help guide the cleanup.

Specific comment 3,4 and 5: These comments were related to the risk assessment and challenged the methods used in the RI. Like the APC commenter, this commenter was concerned that growing and ingestion of home grown produce was not included in the risk assessment and that the assessment failed to set cleanup levels based on the combined risk from soil and groundwater. The commenter offered alternate calculations of cancer and non-cancer site risks.

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Response: As explained in a prior response, the IR02 risk assessment did consider the homegrown produce pathway when estimating site risks. As a result, residential cleanup standards for PCBs and cadmium were selected to allow for unrestricted use of the property, including the growing and ingestion of produce. Although groundwater contamination is not addressed in this RAP/ROD, the RI reported that risks to residents from the groundwater inhalation pathway were low (an ELCR of 10^{-8} and an HI of less than 1). In addition, the residential soil standards will contribute to the protection of groundwater because they prevent migration of soil contaminants to the groundwater. When groundwater cleanup levels are ultimately chosen (if necessary), they will be set so that overall site risk will be acceptable for all possible exposure pathways.

The risk calculations submitted by the commenter appear to have added the risk from the homegrown produce pathway to the site risk that would remain after the remedy was complete. In fact, the cleanup levels for PCB and cadmium already assumed that homegrown produce would be consumed after the remedial action was implemented. As noted, the proposed cleanup goals are set to allow for unrestricted use including ingestion of homegrown produce so it is inappropriate to add risk from homegrown produce separately.

Specific comment 6: The commenter suggested that the ecological risk assessment was inadequate and that impacts from stormwater migration pathways should be included so that lower cleanup levels would result.

Response: The ecological risk assessment (ERA) was designed to determine whether historical releases from the site caused unacceptable risks. The ERA investigated off-site releases to the environment assessing habitat and potential receptors. In addition, a sediment bioassay was completed to determine whether releases to sediment caused unacceptable ecological risks. The ERA concluded there were no such releases. The methodology that the commenter is suggesting would assess future migration from the site. Since the remedial action significantly reduces contaminant concentration levels and places clean fill on the site surface, it is highly unlikely that future stormwater runoff would result in releases of contaminants that would cause harm to the environment.

Specific comment 7: The commenter states that the proposed plan is unacceptable and requests that the Navy revise the FS to include an alternative that results in a cancer risk below 1 in 1,000,000 (10^{-6}) and alternatives that make consumption of homegrown produce safe.

Response: As stated earlier, the cleanup levels chosen for the residential portion of IR02 allow for unrestricted use of the property, including the growing and consumption of homegrown produce. The FS and proposed plan fulfill the requirements of the NCP by selecting a remedial alternative that achieves cancer risks within the range of 10^{-6} and 10^{-4} . These risks are identified by the NCP as acceptable exposure levels for carcinogens. To consider remedial actions that reduce risks below 10^{-6} would not result in a significant increase of protection to human health and the environment. In addition, the risk

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associated with the proposed cleanup levels is consistent with site-specific risk management determinations made by the Navy and DTSC at the Alameda Facility/Alameda Annex.

Specific comment 8: The commenter expressed concern that because the Navy has proceeded to fund design activities a perception is created that public comments will not be considered.

Response: The Navy has proceeded with the design activities at its own risk and has not prejudged the outcome of the public involvement process. The members of the BRAC Cleanup Team (BCT), including the DTSC and the City of Alameda agreed that expediting the design schedule could ensure that, whatever alternative was chosen, construction of the remedial alternative could begin soon after the completion of the ROD process. The Navy has agreed to help the City of Alameda as it strives to meet its commitment in calendar year 2001 to develop and provide affordable housing at the Alameda Facility/Alameda Annex. To that end, the Navy and the other BCT members have aggressively solicited and carefully considered all public comments that have been submitted regarding IR02.

APPENDIX D
NONBINDING ALLOCATION OF RESPONSIBILITY
(1 PAGE)



Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

Department of Toxic Substances Control

Edwin F. Lowry, Director
700 Heinz Avenue, Suite 200
Berkeley, California 94710-2721



Gray Davis
Governor

PRELIMINARY NONBINDING ALLOCATION OF RESPONSIBILITY

Health and Safety Code (HSC) section 25356.1(e) requires the Department of Toxic Substances Control (DTSC) to prepare a preliminary nonbinding allocation of responsibility (the "NBAR") among all identifiable potentially responsible parties (PRPs). HSC section 25356.3(a) allows PRPs with an aggregate allocation in excess of 50% to convene an arbitration proceeding by submitting to binding arbitration before an arbitration panel. If PRPs with over 50% of the allocation convene arbitration, then any other PRP wishing to do so may also submit to binding arbitration.

For IR02 the Navy agrees that the preliminary NBAR may designate that the Navy will be 100% responsible for the implementation of the required Navy activities covered in this RAP. The Navy does not concur with the findings of the NBAR and reserves any and all rights that it may have to challenge the findings of the NBAR in any future proceedings. The Department's preliminary NBAR is without prejudice to the Navy's right to challenge such allocation in any subsequent proceedings, except the right to seek binding arbitration pursuant to HSC section 25356.3(a) which right is expressly waived. The Navy has further agreed that it reserves its rights to seek recovery of its costs against any party whether currently identified as a PRP or otherwise. Consistent with the agreement of the Navy, the Department's preliminary NBAR allocates 100% of the responsibility for implementation of the required Navy activities covered by this RAP to the Navy.

DTSC sets forth the following preliminary nonbinding allocation of responsibility for Site IR02 at Fleet and Industrial Supply Center Oakland, Alameda Facility/Alameda Annex:

The Department of the Navy is allocated 100% responsibility.